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ABSTRACT

The papers and research reports in this monograph form two parts. Part I is intended to help geography educators learn more about how children conceptualize space. The validity of Piaget's views on the evolution of conceptions of territorial size among children of different countries was investigated. Reflecting a different concern for educators in general, Part II provides evidence as to how students of geography in the secondary schools of various countries perceived their teachers' teaching styles. The five research reports in part I present a general review of the literature of territorial concept development experiments in the United States, Brazil, and Canada, and measure geographic knowledge by Piaget's spatial stages. Part II begins with a survey of educational research techniques for investigation of teacher-pupil interactions. It includes the "Student Perception of Teacher Style" test (SPOTS), which is the instrument used for the investigations of pedagogical processes in London, New Zealand, Cyprus, Quebec, Nigeria, Hong Kong, and the United States. The concluding article offers a general analysis of the teaching style research included in the monograph and suggests applications of SPOTS as a feedback technique for teachers. Abstracts of each paper in English, French, and Russian are included. Questionnaires of student perceptions of teacher styles are presented in the appendix. (Author/DB)

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SPATIAL STAGES DEVELOPMENT IN CHILDREN AND
TEACHER CLASSROOM STYLE IN GEOGRAPHY

INTERNATIONAL RESEARCH IN GEOGRAPHIC EDUCATION

Edited by

Joseph P. Stoltman
Western Michigan University
Kalamazoo, Michigan
USA

Research Reports Prepared in Conjunction
with the 23rd Congress of the International Geographical Union

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Dedicated to

Joseph Aaron and
Justin Michael,

who occupy the center of
their father's universe.

FOREWORD

After the 22nd International Geographical Congress held in Canada in 1972, the International Geographical Union's Commission on Geography in Education set up seven working groups which attacked a number of problems in the field of geographical education. One of these groups was led by Dr. Joseph P. Stoltman of the Department of Geography of Western Michigan University. The group's concern was to further research in the interface between psychology and geography, particularly with a view to improving the practice of teachers of geography by throwing light on certain aspects of geographical education.

Two main problems were tackled. The first was to find out how far Piaget's views on the evolution of children's conceptions of the relationships between territories of different sizes (in Switzerland: town, canton, country), could be shown to be valid among children of other countries. The second was to get evidence as to how students of geography in the secondary schools of various countries perceived their teachers' teaching styles; that is, did they see their geography teachers as essentially directive or non directive in their classroom behaviour, and what did these findings imply for the geography curriculum.

The present publication sets out to describe the way the research was undertaken, its results and their implication for geographical education. Joseph Stoltman begins by reviewing the literature on the development of territorial concepts among children and adolescents, and there follow a series of reports on experiments carried out in Brazil by Livia Oliveira, in Georgia, USA, by Joseph Stoltman, in Indiana, USA, by D. Rand, John Towler and J. Feldhusen, and in Canada by John Towler and D. Price. John Steinbrink then surveys the kinds of techniques available to educational researchers in the investigation of teacher-pupil interactions, including the "Student Perception of Teacher Style" test (SPOTS) which is the instrument used for the cross-cultural investigations which follow. These studies were undertaken in the United Kingdom by Frances Slater, in New Zealand by Colin Knight, in Cyprus by Ronald Dutton, in Quebec Canada by Roch Choquette, in Nigeria by Tunde Okunrotifa, in Hong Kong by S. K. Chu, and in the USA by Joseph Stoltman who also rounds off the whole project with a statement on how such research may be used to benefit one's teaching.

I should like to commend this work as an example of the sort of research which can be usefully undertaken in geographical education and as a model of the kind of international cooperation that the International Geographical Union exists to promote. Lastly I want to thank Dr. Joseph Stoltman for the way he has

conceived this project and guided it to its final fruition.
It makes an eminent contribution to the Commission's work over
the past 4 years.

NORMAN J. GRAVES

Chairman of the International Geographical
Union's Commission on Geography in Education
1972-76.

2nd March, 1976

AVANT-PROPOS.

Après le 22ème Congrès International de Géographie qui a eu lieu au Canada en 1972, la commission: Géographie/Education de l'Union Géographique Internationale a fondé sept groupes de travail qui ont eu pour mission d'investiguer divers problèmes concernant la didactique de la géographie. Le professeur Joseph Stoltman de l'Institut de Géographie de l'Université de Western Michigan, a été chargé de la direction d'un de ces groupes dont le but était de faire des recherches interdisciplinaires, à la fois dans le domaine de la psychologie et dans celui de la géographie, afin, par de nouvelles connaissances, de mieux équiper les géographes enseignants.

Le groupe s'est attaqué à deux problèmes principaux. Le premier était celui de découvrir à quel point les recherches de Piaget sur l'évolution des concepts des rapports entre ville, canton et pays chez l'enfant en Suisse, seraient valables quand il s'agirait d'enfants d'autres pays. Le second, était de savoir quelle était la perception des étudiants de l'enseignement secondaire, de l'enseignement géographique qu'ils recevaient, en particulier, s'ils percevaient leurs professeurs comme dirigeant leurs études étroitement, ou s'ils les percevaient comme leur donnant beaucoup de liberté dans la marche de leurs études.

Cet opuscule décrit les recherches qui ont été entreprises, leurs résultats, et ce qu'elles impliquent pour la didactique de la géographie. Le professeur Stoltman commence par le sommaire des connaissances actuelles sur le développement des notions de "décentration territoriale", chez l'enfant; ce sommaire est suivi d'une série de rapports sur des expériences entreprises au Brésil par Livia Oliveira, en Géorgie aux Etats-Unis par J. Stoltman, en Indiana aux Etats-Unis par D. Rand, J. Towler et J. Feldhusen, et au Canada par J. Towler et D. Price. Ensuite, J. Steinbrink nous présente un résumé des techniques de la psychologie propres à investiguer la qualité des interactions entre professeurs et élèves, y compris le test SPOTS ("Student perception of teacher style" - qui peut se traduire par "la perception de l'étudiant du style d'enseignement du professeur"), qui est le test employé dans les recherches inter-culturelles énumérées ci-dessous.

Ces études ont été faites en Angleterre par Frances Slater, en Nouvelle Zelande par C. Knight, à Chypre par R. Dutton, au Québec Canada par R. Choquette, au Nigeria par P. O. Okunrotifa, à Hong Kong par S. K. Chu et aux Etats-Unis par J. Stoltman; ce dernier termine cet ouvrage en indiquant l'utilité de ces recherches pour les géographes enseignants.

Ces travaux sont un éminent exemple du genre de recherches que l'on peut entreprendre en didactique de la géographie et également un modèle de coopération internationale dont l'Union Géographique Internationale peut être fière. En dernier lieu, je tiens à remercier le professeur Stolman de sa collaboration précieuse et de la façon dont il a mené à bien le travail de son groupe; les résultats qu'il a obtenus s'avèreront de la plus grande utilité. L'oeuvre de la Commission s'est trouvée enrichie par les apports de ce groupe dynamique.

NORMAN J. GRAVES

Président: Commission: Géographie/Education
de l'Union Géographique Internationale 1972-1976

1e 2 mars 1976

ACKNOWLEDGMENTS

The editor extends his appreciation to colleagues who participated in the research and writing of articles for this monograph. Their enthusiasm and interest in the project were instrumental in reaching the final stage of the research. Special thanks is due Dr. Norman Graves, University of London, Institute of Education, for his support and encouragement since the idea for such a project was proposed at Quebec City in 1972.

The translation of the abstracts into French and Russian was completed by colleagues at Western Michigan University. Gratitude is extended to Professor Genevieve Orr for the translation to French, and to Professor Irene Storoshenko for the translation to Russian.

My colleague, Professor Raymond Jaeger, of Western Michigan University gave unsparingly of his time to assist with final editing and proofreading of the manuscripts. His assistance as the project reached completion was appreciated.

Finally, Ms. Mary Powell, my secretary, maintained momentum in the final stages of the project through careful supervision. Ms. Linda Castle, the typist, performed the seemingly impossible task of transforming edited to final copy. Ms. Christina Bacon Eichenlaub spent numerous hours processing data as my research assistant. And, Ms. Josephine Wasierski, my student assistant, was responsible for mailing SPOTS research forms out, and inspecting every marked sheet which was returned. This entailed almost 35,000 sheets between 1973 and 1975. The contribution of these final four individuals defies an adequate expression of appreciation.

Joseph P. Stoltman

Preface

The papers and research reports in this monograph form two parts. Part I reveals a need by geography educators to learn more about how children conceptualize space and apply the verbal titles which adults assign to political territories. The reports contribute additional information regarding the way in which geography fits the larger scheme of human development, as related especially to the research of Jean Piaget.

The items in Part II reflect a different concern for educators in general. They represent a very exciting potential for changing the traditional role of teachers. The SPOTS research represents one aspect of a new pharmacology of behavioral feedback resources which can be prescribed for the teacher. The teacher's traditional role is described by a well known set of behaviors: authority, talking or telling, asking questions, testing, and grading or marking. Yet, no research base indicates that these behaviors enhance learning; in fact, many educators suspect they do not. In order to specify strategies of teaching which vary from the traditional teacher role, it is necessary to identify and analyze teacher behaviors. These reports provide one paradigm by which a teacher can strive toward self-actualization in teaching excellence.

Joseph P. Stoltman
Kalamazoo, Michigan
USA
June, 1976

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TERRITORIAL CONCEPT DEVELOPMENT:
A REVIEW OF THE LITERATURE

J. Stoltman
United States

ABSTRACT

The author reviews methodological and research literature from geography, psychology and geographic education, which focuses upon the concept of territory, territorial decentration, and spatial stages development in school children. Research techniques and theoretical positions are described as related to learning and curriculum development. The greatest amount of research related material is from psychology, with geographic education synthesizing those research findings into curriculum development and teacher training. Sound geographic education requires that geography, psychology and education each contribute to the benefit of teachers and pupils.

LE DÉVELOPPEMENT DU CONCEPT TERRITORIAL:
UN EXAMEN DES ÉCRITS TRAITANT DE CE SUJET:

J. Stoltman
Etats-Unis

RÉSUMÉ

L'auteur examine les écrits de méthodologie et de recherches sur l'enseignement de la géographie et de la psychologie qui se concentrent sur le concept de territoire, de décentration territoriale et sur les étapes de conscience spatiale chez les enfants des écoles primaires. L'article décrit les techniques de recherches et les positions théoriques dans leur rapport avec l'action d'apprendre et le développement des programmes à suivre. D'après l'article, on trouve une plus grande quantité de recherches sur l'appareil pédagogique en psychologie, avec un enseignement géographique qui synthétise les conclusions dans le développement des programmes et de la pédagogie. Un bon enseignement géographique demande que la géographie, la psychologie et la pédagogie contribuent chacune au développement de l'élève et du professeur.

РАЗВИТИЕ ПОНЯТИЯ ТЕРРИТОРИАЛЬНОСТИ: ОБЗОР ЛИТЕРАТУРЫ

И. Столтман
Соединённые Штаты

ВЫДЕРЖКА

Автор делает обзор методологической и исследовательской литературы по географии, психологии, и географическому образованию, в центре внимания которой находится понятие территории, территориальной децентрации и развитие пространственных стадий (этапов) у школьников. Исследовательские методы и их теоретическое обоснование описаны в их отношении к учебному процессу и развитию учебного плана. Преобладающая часть материалов относящихся к исследованию взята из области психологии, а предметы связанные с географией обобщают результаты исследования для развития учебного плана и образования учителей. Хорошее образование в области географии требует того, чтобы география, психология и педагогика внесли свою долю для общей пользы учителей и учеников.

Professor J. Stoltman, Department of Geography, Western Michigan
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Territorial Concept Development: A Review of the Literature

J. Stoltman
United States

Territorial concept development involves the child's centered political territory, i.e., his town or city, and his decentered political territories, i.e., his county, state, and nation. Piaget (1951) theorized that a child's spatial stages evolve as "logical decentration, enabling the child to subordinate his territory (town or canton) to a larger unit in which it is enclosed [p. 567]." Piaget (1951) uses "decentration" to describe the expanding territorial perspective of the child. Centration is the act of centering (Gove, 1969), so decentration is interpreted by the investigator to mean the act of extending outward from the center.

The concept of territory has appeared with regularity in geographic literature. However, the primary source for empirical research regarding territorial concept development is the literature from psychology. Three psychological studies of particular importance in territorial concept research constitute the review of literature. The social studies and geographic education are a third source of territorial concept development literature.

Territory In Geographic Literature

Geographers have long claimed one of their interests as a territorial perspective, or way of viewing man's territorial organization (Broek, 1965). For example, geographers concerned with human phenomena have identified and treated segments of terrestrial space as territory. That territorial viewpoint has been incorporated for numerous purposes, political, economic, and expeditional, in geographic research. By virtue of its tenure as a conceptual viewpoint, territory as related to humans falls within the general domain of geography.

Geographic reporting and study as a result of territorial experiences has had a long and colorful heritage. Aristotle (1921), Strabo (1917), and Ibn-Khaldun (1958) included philosophical and experiential conceptualizations of territory. Years later, territory became an important concept in political geography (Ratzel, 1896, 1969). Mark Jefferson (1917), a leading American geographer, considered territory as those lands peripheral to and owned by the national state. That viewpoint has permeated much of political geographic thought during subsequent years.

(Hartshorne, 1950, 1954; Stamp, 1966). The influences of American geography upon the evolution of territorial considerations are recorded in the numerous studies of international boundaries. The best known are those by Isaiah Bowman (1921), a geographer appointed as chief American territorial advisor to the Paris Peace Conference. Thus, the concept of territory has become well entrenched in political geography.

Territory in non-political contexts has also appeared. In one such account, Derwent Whittlesey (1945) implied a territorial conception when he used "geographic horizon" to describe man's expanding awareness of the world. The geographic horizon represented the continual enlargement of territory from its primitive beginning, e.g., the walls and canopy of the rain forest, to a more complete perspective of the world at large. Another geographer compared the territorial behavior of animals to that of man (Wagner, 1960). Although such comparisons have been infrequent in geographic literature to date, some do appear. However, they are not nearly as well known as the more popular materials by Audrey (1966) and Hall (1966).

More recent material related to the concept of territory is found in perception studies by geographers. The concept of territory in the form of neighborhoods, districts and boundaries is regarded as a key variable in research on perception (Saarinen, 1969; 1976). The political organization of territories smaller than the nation is also of interest to geographers, yet has received little empirical research (Soja, 1971). Knowing when children begin to conceptualize political territory will perhaps provide clues for geographers dealing with territory at large.

Territory in Psychological Literature

Research regarding territorial concept development in children has been a byproduct of inquiries pertaining to the development of nationalism. The present study is not concerned with the child's nationality attachment in an affective or emotional sense. However, past research is applicable to the present study by virtue of the kinds of political territories and measurement tasks incorporated in the assessment of nationalism.

The initial study of the territorial concept in children was conducted by Jean Piaget, a Swiss psychologist. In *Judgement and Reasoning in the Child* (1928), Piaget reported the results of inquiries about the nationality concept of Swiss school children. He found that up to the age of nine the children denied the possibility of being both Swiss and the member of a Swiss canton. The children insisted they were citizens of a city or canton, e.g., Geneva, Vaudois, instead of citizens of Switzerland. Such a reaction, Piaget believed, was not due to local patriotism since the children did not show even the slightest signs of pride in their district. He concluded that the question of emotional attachment to a local area was one that had never occurred prior to his inquiry.

The children oftentimes had mastered some specific information about Switzerland, but the ever present denial of being both Genevan and Swiss supplanted any real development of a logical relationship between the two. Piaget viewed the latter situation as an inability to create a schema with the correct territorial relationships. Even when subjects responded that they were both Swiss and Genevan, they did not understand how the part that is fitted into the whole actually forms part of the whole.

To illustrate that point, Piaget drew a large circle in which he placed several smaller circles. The child was told that the larger circle represented Switzerland and one smaller circle was Geneva while the other was Vaud, a nearby canton. The child recognized that to be Genevan was also to be Swiss since the smaller circle was inside the larger. The child also responded that someone could be both Genevan and Vaudois since both circles were in Switzerland. The latter response, according to Piaget, revealed an inadequate understanding of the relationship between the three circles, and hence, a failure to grasp the schema.

On the basis of those observations Piaget postulated that the developmental notion of country is marked by three stages. During the first stage, nation, town and canton represent approximately equal magnitude in the child's reasoning. The three are mutually exclusive, with one being of dominant force depending upon the child. In the second stage, the child recognizes that the town and canton are located in the nation, but does not believe they form a part of it. Even though Switzerland surrounds Geneva, the latter is not really a part of the nation. In the third stage, the child makes the correct territorial relationship between nation, town and canton.

The Cold War years following World War II probably attributed in part to Piaget's continued concern with the concept of nationality in children. To further investigate the nationalism question, Piaget (1951) interviewed over two hundred children between the ages of four and fifteen years. All the subjects were either Swiss or foreign living in Geneva. The survey followed a verbal question format and required some pictorial responses from the children.

As a result of the survey, Piaget concluded that the idea of a national homeland and its emotional connotations occur neither first nor even early in children's development. Prior to attaining a cognitive-affective awareness of the national homeland, the child goes through a decentration process. That process broadens the child's center of territorial interest from the home and family to the town, state and region. Piaget (1951) reported that children initially perceive their surroundings and activities as the only ones possible. He labeled that state of mind "unconscious egocentricity." As the child responds to other situations and surroundings, the egocentric attitude is modified and the ability to intergrate new cognitive-affective inputs is developed. As the child progresses away from unconscious egocentricity, various forms of sociocentricity are manifested as territorial decentration.

Piaget (1951) observed that young children, five years of age or less, had only a simple notion of the territory in which they lived. They were conscious of their home and possibly their town or city. They had knowledge of certain specific characteristics, such as approximate size, i.e., big, small, and the main language spoken, i.e., French, German, English. Intermixed with the characteristics were illogical extensions and applications to larger territories, such as the canton and state. However, Piaget found that by the age of five and six the verbal notion that "Geneva is in Switzerland" was learned.

Although most six and seven year old children asserted that "Geneva is in Switzerland," they tended to think of the two as contiguous. The territorial relationship of Geneva to Switzerland was shown as juxtaposed circles. They thought of Switzerland and Geneva as comparable territories, with Geneva being situated outside of Switzerland. They did not understand in a territorial or logical sense that Geneva is part of and indeed is Switzerland. Territorially they considered it contiguous, being unable to conceptualize how or why the part is included in the whole.

The placement of a small circle, Geneva, inside a larger circle, Switzerland, represented the second decentration stage, occurring between eight and ten years of age. The child no longer juxtaposed the circles, but represented their territorial relationship correctly. Piaget found, however, that territorial enclosure was not matched by a systematic logical inclusion of one category within another. Although the children were subject to information inputs regarding the relationship of town to canton to nation, they were unable to synthesize them into a coherent territorial structure. Piaget (1951) labeled the responses of the stage two children as bipolar. A certain degree of logical activity was evident, as indicated by progress beyond the first stage. He believed decentration and integration of territories was indeed underway in those children.

Piaget placed the third stage of development at about ten to eleven years of age. It is during stage three that the idea of homeland or nation becomes a reality in the child's mind. Piaget concluded that the development of homeland attachments can result from cognitive correlations of territories, e.g. city in nation, or can result from emotional, affective, factors inherent in socio-centricity. Furthermore, he considered that both cognitive and affective factors may evolve simultaneously and result in a consciousness of the home nation. Stage three, then, is characterized by the decentration of political territories to the national level (Piaget, 1951).

Piaget's 1951 study went virtually unnoticed until the early 1960's. At that time Gustav Jahoda (1963), a researcher in the United Kingdom, attempted a replication study using Scottish children between the ages of six and eleven years. Four Glasgow schools were chosen for the research, two in a well-to-do middle class neighborhood and two in a high density slum area of semi-

and unskilled workers. He randomly selected 144 children and interviewed and tested them individually.

Jahoda observed the children's intellectual grasp of the environment began with the immediate vicinity and gradually extended outward as cognitive development continued. His primary concern was to define the general age at which children could realistically comprehend the territorial relationships of their expanding environment. Jahoda (1964) attempted to apply the three stages which Piaget (1951) had theorized. He was unsuccessful however, for methodological reasons resulting from Piaget's open ended, qualifiable record of responses. As an alternative, Jahoda assigned the children to four geographical (G) stages.

Jahoda found that children in the first geographical stage thought of Glasgow as a nearby, but vague, entity. They did not consider Glasgow to include their own location. They described it as being "Beside the playground; up by the park; and, down in Y Avenue." Many of the children were aware of the term Scotland. However, their notions were nebulous at best. Jahoda found that children at the G one level either tended to: 1) consider Scotland and Glasgow as the same thing (a complete lack of differentiation); 2) believe that Scotland existed somewhere outside of Glasgow; or 3) offer random associations, such as kilts and dancers, to the inquiries about Scotland. When questioned about Britain, children at this stage could offer nothing beyond the vague familiarity of the word. It was usually considered a remote place which some people visited (Jahoda, 1963).

At the second geographical stage, Jahoda found children conscious of belonging to a territorial unit called Glasgow. They no longer considered it across the street, located next door, or in a nearby place. The common response was "Glasgow is here where we are." Neither Scotland nor Britain was clearly differentiated at this stage. The major developmental change was with the conceptualization of Glasgow as a city inclusive of the child's present geographical location. The children realized it was where they lived (Jahoda, 1963).

At the third geographical stage the child's vocabulary bypassed the logical representation of Glasgow, Scotland and Britain. Most children at this stage responded with "Glasgow is in Scotland." However, they were not aware of Scotland as an entity within the British Isles, nor of Britain as a national entity. Scotland was identified variously as a town and a country. Jahoda concluded it was questionable whether any real understanding supported the verbalization of Scotland. He believed "Glasgow is in Scotland" was a parrot response. Scotland represented a word the children frequently heard, but which had little meaning to them.

Geographical stage four children had attained the normal adult understanding of Britain as a well defined unit of territory. A typical response, according to Jahoda, was "Glasgow is in the Central Lowlands of Scotland; Scotland is a country; It is just

north of England; Britain is Scotland, England, Wales, and Northern Ireland." Such a response illustrated clarity of territorial relationships between Glasgow, Scotland, and Britain.

Whereas Piaget had used circles to represent political territory in his investigations, Jahoda designed a task requiring the child to manipulate four props. The props, a small brass disc, two white pieces of plastic, and one larger piece of plastic, represented Glasgow, Scotland, England, and Britain. The positioning of the props was used to verify the verbal responses in a manner similar to the use of circles in Piaget's research. Jahoda found an increasing relationship according to age between children's verbal description of the relationships of territories and their ability to correctly represent territorial relationships with props.

Both Piaget (1951) and Jahoda (1964) credited the non-school environment with much of the child's decentration of territory. Their general comments, however, were restricted to social class and travel experiences. Ideas similar to territorial decentration have been briefly investigated by several American psychologists. Unfortunately, those inquires did not make any attempt to incorporate Piagetian concepts. Deutsch and his associates (1967) found it reasonable that normal kindergartners or first grade children should know the name of their city or town. However, they observed that disadvantaged first grade children usually do not have such information. Deutsch believes that the disadvantaged child's exposure to territorial information is no guarantee that it will be conceptualized. He observed that migrant workers' children who had crossed the nation numerous times following crops did not exhibit territorial decentration. Those children's knowledge of the areas and places they had traveled was minimal (Lavatelli, 1970). Another investigator (Mugge, 1963) observed that second grade children with above average intelligence and from above average socio-economic homes had difficulty keeping cities, states and countries in proper territorial relationship. She also concluded the children had learned relatively little from family travel experiences. More recently spatial studies have been completed by Towler and Rand. Reports of their research appear as articles in this monograph.

Territory In Geographic Education

Territory as a concept has a long and pervasive history in geographic education. The writings of Comenius, Ritter, and Pestalozzi render testimony to its longevity. At the beginning of the Twentieth Century, the geography of the schools was strongly influenced by the German practice of *Heimatkunde*, or using the local environs as a medium for learning. In Britain the practice took the form of regional surveys utilizing field observations and map representation (Dickinson, 1970). In France, local geography and observational study have long been and remain the format of the elementary school curriculum (Rice, 1966). In the United States the local studies practice has prevailed at the primary grades and has become the expanding environment curriculum at the upper elementary grades. Local studies in the United States gained

early support from Richard E. Dodge and Edith P. Parker and attained substantial popularity. However, the emphasis upon field experience was not maintained. On the other hand, the interest in observation and visual training persisted (Pattison, 1970).

The most articulate statement regarding the expanding environment approach to the curriculum is Geography in the Teaching of Social Studies Concepts and Skills (Hanna, *et al.*, 1966). A seven topics sequence of the expanding environment approach by communities is developed (Table 1). The authors claim that:

The logic of the sequence of emphases emerges from the fact that everyone lives simultaneously within a set or system of enlarging but interdependent communities of men. Between the individual child at the center...and his ultimate world (the outer band) lie a number of communities of varying size and scale. It is the responsibility of the school to help each child become aware of each community in the set and develop competency to participate effectively in it (Hanna, *et al.*, 1966, p. 78).

TABLE 1

SEQUENCE COORDINATES: EXPANDING COMMUNITIES OF MEN

The Family Community
The School Community
The Neighborhood Community
The Local Communities: County, Cities, Metropolis
The State Community
The Region of States Community
The United States National Community

Hanna, 1966, p. 79

The impact of the expanding environment philosophy is recorded in the social studies sequences from commercial publishers of elementary school textbooks (Imperatore, 1970; Jarolimek, 1967; Taba, 1967; Hanna, 1966; Fraenkel, 1969). While such a curriculum is not a national policy and variations exist from school to school, community to community, and state to state, the dominance of the expanding environment approach gives the appearance of a national curriculum policy. In general, elementary textbooks in the United States present social studies experiences through an expanding environment curriculum. It is reasonable to expect, therefore, that territorial decentration, as indicated by children's knowledge of political territories

and the relationships of such territories, will conform to Piaget's theory of developmental spatial stages.

However, in the first three grades social studies is frequently absent. The children's exposure to town and city concepts is through basal reading programs. In the upper elementary grades, by virtue of State mandate, the geography and history of the United States are generally the topics of social studies (Jarolimek, 1967). The study of territories smaller than the state is often incidental until such time a state history course is required by statute, generally during the junior high school grades (McLendon, 1965). Therefore, many school programs do not contain a curricular sequence complementing the territorial decentration stages.

Participation by geographers in elementary curriculum development has, for the most part, been minimal. The responsibility has rested primarily within the professional interests and competencies of social studies educators. Frequently the resultant curriculum is devoid of a geographic perspective or contains geographic material not reflective of the profession's most recent developments. The negative consequences of minimal participation by geographers in curriculum design have been expressed repeatedly (Bacon, 1963; Kenamer, 1967; Towler, 1971).

Independent from curriculum development is an upsurge in geographers' and geographic educators' interest in the territorial dimensions of the child's environment. William Pattison has chosen to interpret geography as "a tradition, expressed through interpretations of information derived from territorial experience" (Allen, 1971, p. 16). Other geographer-educators have identified the child's ability to think spatially and conceptualize the spatial environment as utilizing territorial experiences (Bacon and Kenamer, 1967; Miller, 1970). The significance of geography instruction as a territorial experience is further objectified by French geographic educators as gaining "a knowledge of the territory that one inhabits" (Rice, 1966, p. 226). Still others maintain that comparing the learner's territory of real life to the arrangements on the map's pen and ink territory emphasizes the observational importance of territorial experiences (Pattison, 1970).

Piaget's preoccupation with the child's development of various physical concepts of space, distance, direction, and reference systems has provided numerous research topics for similarly interested geographic educators. The studies of Towler (1969, 1970) and Beilin (1970) investigated Piagetian concepts in geographic education, especially with application to map reading skills. Although the studies are not related directly to the present study, they do attest to the interest in Piaget and the necessity for standardizing his tasks in experimental tests of theory. Another series of studies by Blaut and associates are oriented toward Piagetian related tasks and concepts (Blaut, 1969; Stea, 1969).

The most recent indication of the increasing concern among geographic and social science educators regarding perception,

spatial visualization, and the general question of territorial conception is Focus on Geography, the 40th Yearbook of the National Council for the Social Studies (Bacon, 1970). The Yearbook presents an introduction to environmental perception as a research endeavor in geography (Saarinen, 1970). Important questions for social studies teachers are, in Saarinen's words, "What kinds of geographic horizons are present in the minds of their students, and how might these be extended? At what ages and stages are children ready to grasp a broader concept of space [p. 65]?" The decentration of territory is complementary to those questions.

In the same volume, Eliot (1970) alleges that American psychologists have extended a few clues to the geographer and educator regarding territorial concept development as a product of spatial visualization. There have been attempts to investigate the literature focusing upon the spatial concept development (Sabaroff, 1957) and to research the phenomenon in curricular sequences (Rushdoony, 1968; Beilin, 1970). However, little is presently known about those topics, except the general agreement regarding their importance to geographic education.

Questions regarding perception, conceptualization, and logical thinking are emerging in geographic education at the teacher preparation level. This is a positive reflection on the manner in which research literature is being subsumed within teacher training models. Recent teaching methodology books in geographic education, namely that by Graves (1975), include sections such as "Learning Problems in Geography: Perception" and "Learning Problems in Geography: Conceptualization and Logical Thinking". Such development strongly suggests the geography educator's concern with the synthesis of geography, psychology and education for the benefit of teacher and pupil.

In conclusion, the literature relevant to territorial conceptualization is from three sources: 1) the conceptual framework for territory comes from the geography profession, specifically political geography; 2) territorial concept research to date is from psychology, particularly the inquiries by Piaget and Jahoda; and 3) the geographic educator's historical concern with managing the child's development of territorial concepts through curricular sequences is evident in the literature representing that field. Seemingly, the task is to consolidate the conceptual and theoretical frameworks of the geographers and psychologists and further research the territorial concept development in children.

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THE CONCEPT OF TERRITORIAL DECENTRATION IN BRAZILIAN SCHOOL CHILDREN

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ABSTRACT

This study was designed to test Piaget's theory of spatial stages. The Territorial Decentration Test was given individually to 224 children randomly selected from a public school in Rio Claro, Sao Paulo. Age, sex and socio-economic levels were considered in the analysis. The implications of the study are: 1) that curriculum should complement territorial decentration, 2) that pedagogy should enhance the development of the territorial decentration concept in children, and 3) that study materials should be prepared alerting the teacher and student to the importance of territorial decentration for comprehension of global interaction and understanding.

LE CONCEPT DU DÉCENTRAGE TERRITORIAL CHEZ LES ÉCOLIERS BRÉSILIENS:

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RÉSUMÉ

Cette étude se rapporte à une réplique brésilienne d'une étude d'application des théories de Piaget sur les différents niveaux de conscience de l'espace. Le test de décentration territoriale fut appliqué individuellement à chacun des 224 enfants choisis au hasard dans une école publique de Rio Claro, Sao Paulo. L'âge, le sexe et les niveaux socio-économiques étaient compris dans l'analyse. Les implications et conclusions de l'étude sont: 1) que le curriculum doit contrebalancer la décentration territoriale; 2) que la pédagogie doit accroître le développement du concept de décentration territoriale des enfants et 3) que l'appareil pédagogique doit être préparé de façon à ce que l'enseignant et l'élève soient rendus conscients de l'importance de la décentration pour mieux comprendre l'interaction et la compréhension humaine sur le globe.

ПОНЯТИЕ ТЕРРИТОРИАЛЬНОЙ ДЕЦЕНТРАЦИИ ШКОЛЬНИКАМИ В БРАЗИЛИИ.

Л. Оливейра
Бразилия

ВЫДЕРЖКА

Это исследование является репликой исследования предназначенного для испытания теории Пиаже о территориальных стадиях в Бразилии. 224 школьника, отобранных произвольно, были индивидуально подвержены испытанию территориальной децентрации. Все дети были учениками в государственной школе в Рио Claro в провинции Сан Паоло. Возраст, пол и социально экономическое положение были включены в исследование. Выводы исследования следующие: 1. Территориальная децентрация должна быть частью учебного плана; 2. Методами педагогики нужно усилить в детях понятие территориальной децентрации; 3. Учебные материалы должны быть приготовлены таким образом, чтобы оба - учитель и ученик сознавали важность территориальной децентрации для осуществления взаимного понимания в мировых взаимоотношениях.

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The Concept of Territorial Decentration In Brazilian School Children

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Piaget's research has substantiated that cognitive development is not chaotic, but, on the contrary, is orthogenetic. The mental development process was reconstructed as a succession of stages from an inferior to a superior level of equilibrium which finally attained the logical level. Thus, each stage was instrumental in reaching the next equilibrated cognitive structure.

Furthermore, Piaget postulated that there were transitional stages between the two levels of equilibrium characterized by conflicting behaviors in the child. The child progressed from one equilibrated stage to the next after resolving a conflict. This can be interpreted as an epigenetic system. Piaget theorized that a first stage child behaves in a way that suggests a repression of the cognitive conflict, in the second stage the conflict between different observables occurs, and in the third stage the problem is resolved. According to Piaget's research, the young child has difficulty comprehending relationships, particularly those where he must judge whether or not an element belongs in one class or another, or whether one class should include the other. By analyzing relationships, such as left and right, brother and sister, and inclusion of the part into the whole, Piaget demonstrated that the young child's thinking is egocentric. In the specific cases of family relationships, city-country, and right-left, Piaget found that the child always conceptualizes from his own point of view. The progress made by the child while he manipulates these relation judgments are a result of the progressive diminution of egocentric thought.

Piaget also discovered that children progressed through a series of three stages before fully developing the geographic

The author wishes to thank the personnel of Professor Marciano Toledo Piza, the school selected for the application of the Test. Especially, I want to thank the Principal of the school, the teachers and, last but not least, the children who participated in this study. My appreciation goes to Dr. Maria Lucia Wodzinski, Assistant Professor of Statistics at the Faculdade de Filosofia Ciencias e Letras de Rio Claro for guiding me through the literature pertinent to the interpretation of the numerical results. The information on the socioeconomic status of the children of the study was taken from a study by Rute Aparecida Arraes, Assistant Professor of School Administration at the Faculdade de Filosofia Ciencias e Letras de Rio Claro. I gratefully acknowledge her contribution to the realization of the study.

notion of country. In the first stage, the child attributes the same magnitude of order to country, cities and cantons. Quite often the child uses the correct verbal formulas, but they are translated into a juxtaposed diagramatic scheme. Hence, Switzerland, Geneva and Vaud are side by side, rather than the larger being inclusive of the smaller. The child uses the juxtaposition because he is unable to link the territories in a whole-part relationship. The child thinks in absolute terms. He has a tendency to think of the part by itself, to forget the whole which becomes an abstraction, or another part. The child does not go beyond his own immediate point of view; his nominal conception of country is absolute. This nominal realism of the child does not permit the location of units on a spatial plane. The units are instead located on an imaginary plane in which the objects are absolutely discrete. The child behaves this way because he is incapable of manipulating the logic of the whole-part relationship.

For the child in the second stage, the cities and cantons are inside the country, but they are not part of it. Geneva and Vaud are in Switzerland but they are not Swiss. Geneva is actually in Switzerland, but the child says that he cannot be Swiss and Genevese at the same time. In this stage of transition, there is a cognitive conflict between a juxtaposing tendency and adaptation to the relationship of the whole to the part.

In the third stage, the child is able to correctly link the whole with the part. The child's ideas are finally synthesized, i.e., the country appears as a set of cantons, and Geneva as a part of Switzerland. Therefore, it is possible to be Genevese and Swiss at the same time.

The child thus constructs the notion of country by a process of transition from egocentricity to reciprocity. He must make a great effort to attain territorial decentration. During this process, he acquires an understanding of other countries and other points of view.

Geographic Education Research In Brazil

Brazil belongs to the group of developing countries which have a rapidly growing and changing society. This characteristic of developing countries has a bearing on education as well as other basic institutions. The increasing student population makes the need for new solutions of teaching/learning problems urgent.

The national and state educational authorities have recognized that research is indispensable for finding a basis for action and innovation in the design of the curriculum, the teaching methods and the learning process. Geographical education, as well as other disciplines, has a unique content that must be continuously advanced and restructured through research. To date, the research endeavour in geography education has been modest, so that any efforts to investigate the teaching/learning process, or to test

a theory are welcome. An example of the effects of such investigation is The Educational Reform of 1971 which incorporated Piaget's idea about learning and cognitive development to modify the structure and functioning of all elementary and secondary schools in Brazil.

The subject of this study is particularly relevant to Brazil because it has to do with the child's construction of the concept of country. Finally, it will be possible to compare the results of the study with the findings of similar studies carried out by researchers in other countries.

Research Design and Implementation

Time Line for Data Collection

The twelve month schedule for data collection, translation of the Manual, training of the testers, primary treatment of the data and translation into English was organized as follows:

- 1) October and November, 1973, translation of the Manual and tasks to Portuguese;
- 2) December 1973, pre-testing was done to refine the translation of the tasks and to ensure that the instructions to be used in administering the test were comprehensible to the children of the study. The test was administered to a pilot group of ten children who did not form part of the research sample;
- 3) January 1974, on the basis of the pilot testing, modifications were made on the language of the Manual;
- 4) February and March 1974, training of the testers, preparation of the school population roster and selection of the sample;
- 5) March 27 to April 9, 1974, collection of the data at the Marciano Toledo Piza school;
- 6) April and May 1974, revision of the completed tests for scoring and attribution of stages;
- 7) June to October 1974, primary treatment of the data;
- 8) November 1974, processing of data.

Analysis Technique

The data were subjected to a variety of tests developed and used previously by Stoltman (1971) in his study on Children's Conception of Territory: A Study of Piaget's Spatial Stages. A two-way classification analysis of variance was used to determine the differences between the means for the following groups: 1) age/sex; 2) sex/stages; 3) stages/socioeconomic status; 4) sex/socioeconomic status. To look further at the data, a Chi-square test was performed to determine if stages and ages were independent. A stepwise regression analysis was used with the three variables: age, sex and socioeconomic status to examine which of these variables was most important in explaining student scores on the Territorial Decentration Test.

Instrument

The instrument used for collecting the data was the Portuguese version of Stoltman's Manual of the Territorial Decentration Test. The test asked each participant in the study to answer 38 items, to draw circles in 9 of these items, and to manipulate props in 10 of the items. Stoltman described his test as follows:

The Territorial Decentration Test consists of four subtests: 1) Verbal Territorial Identification (Subtest A) in which the child verbally identifies territories by their political titles (e.g., home town, home country, home state, home nation); 2) Verbal Territorial Relationship (Subtest B) in which the child verbally expresses the inclusion of smaller territories within larger territories; 3) Territorial Inclusion Using Written Symbols (Subtest C) in which the child draws a circle representing a specific territory in relation to an existing circle representing a different territory; and 4) Territorial Inclusion Using Props (Subtest D) in which the child manipulates from two to five props representing territories in order to place them in correct relationship. The child's level of territorial conception is determined by behaviors elicited and the explanation of territorial inclusion principles incorporated. Territory conception behavior refers to the identification of territories and their relationship to each other. Comprehension is assessed from the child's explanation of a particular territorial relationship (Stoltman, 1971).

Test Materials

The materials necessary for administering the test were prepared following the instructions in the Manual. Subtest A required one set of 4 maps representing the child's home county, Rio Claro, and three other distracters, counties of the State of Sao Paulo: Campinas, Conchal and Sao Carlos. The second set of 4 maps represented the State of Sao Paulo, that is, the child's home state and three other distracters, states of Brazil: Santa Catarina, Ceara and Maranhao. The third set of four maps represented the child's home country, Brazil, and three other distracters, South American countries: Argentina, Venezuela and Peru.

All the maps prepared met the following requirements: 1) they were simple outline maps with no information other than the shape of the territory; 2) all the distracters were legitimate territories, but the shape was different from the child's home territory; and 3) the four maps in each of the three sets were prepared in the same scale. The county distracters were used only when the child had to recognize the home county, and the same criteria were followed with the state and country.

For the application of Subtest C a response booklet was prepared in accordance with the specifications of the Manual. In the center of each page of the booklet a circle 25 mm in diameter was printed.

Subtest D required five props: one gold disc, 22 mm in diameter representing the city of Rio Claro; one tan rectangle, 40 by 50 mm representing the county of Rio Claro; two white rectangles, 65 by 90 mm (one representing the State of Sao Paulo and the other the State of Parana); one black rectangle, 205 by 255 mm representing Brazil.

Scoring

The same scoring system used by Stoltman (1971) was applied in this study. The total possible score on both the behavioral and explanation tests was 60 points, with 38 points on the behavioral test and 22 points on the explanation test. The maximum scores on subtests of the behavioral test are: A, 10 points; B, 9 points; C, 9 points; and D, 10 points. The maximum scores on subtests of the explanation test are: A, 3 points; C, 9 points and D, 10 points.

Administration of the Test

The test was applied in the Professor Marciano T. Piza school by 9 testers, previously trained undergraduate female education students. A special room was assigned by the principal for the application of the test. The test was administered separately to each child and required between 15 and 30 minutes to complete.

Assigning of Territorial Stages

The children were assigned to Stages I, II, or III depending on the score achieved in the behavioral and explanation tests. Table 1 shows the criterion scores used for assigning the children to the different stages.

Description of Population Sample

A total of 224 children, 112 boys and 112 girls, ages six to fourteen were randomly selected from Professor Marciano Toledo Piza, a public school in the city of Rio Claro, Brazil. The reasons for selecting this school were: 1) it was the only integrated school, (An integrated school is the total technical, administrative and financial merging of Elementary and Junior High School into a unit that functions in one building under the direction of one principal.) 2) the principal of the school supported the study, and 3) a study on the socioeconomic status level of the parents of the students was being conducted at the time this study was underway.

The school included kindergarten to eighth grade with a total day enrollment of 895 students: 433 girls (48.38%) and 462 boys

(51.62%). Their distribution by grade and sex appears in Table 2.

The population eligible for the study was composed of 847 students: 407 girls (48.05%) and 440 boys (51.62%). The distribution by age and sex is shown in Table 3.

The differences between the totals in Tables 2 and 3 are due to the exclusion of children younger than 6 years of age and older than 14 and 11 months.

The information on the socioeconomic condition of the parents of the children of the study was taken from a study done by the Professor of School Administration of the Faculdade de Filosofia Ciencias e Letras de Rio Claro. The study was completed in 1974.

The instrument for measuring the socioeconomic status was a questionnaire filled out at the homes of the children. The questionnaire included the six following indicators: 1) occupation, 2) income, 3) physical characteristics of the house, 4) living comfort, 5) educational level, and 6) residential area. The indicators received a different weight according to the significance attributed to each one. Occupation received the highest weight (5 points) followed by income (4 points), physical characteristics of the house and living comfort were assigned identical weights (3 points), educational level (2 points) and residential area (1 point).

All indicators have five components with the exception of physical characteristics of the house that has 30 components grouped into 6 categories, and living comfort with 20 components grouped into 4 categories.

The components of each indicator were classified in an increasing order of quality and the points attributed to each one was in a decreasing order from five to one. The score obtained was multiplied by the weight assigned to each indicator. In the case of indicators with more than five components the procedure was as follows: 1) the scores attained in each component of each category were added, 2) this figure was divided by the number of categories of the indicators, and 3) the result was multiplied by the weight of the indicator.

The scale prepared included five social classes: superior, upper; media superior, middle upper; media inferior, middle lower; baixa superior, lower upper; baixa inferior, lower lower. The numerical scale for the classification of the families in the different categories had a minimum of 18 points and a maximum of 90 points. The following distribution of points was used to classify the families in the different social classes.

<u>Social Class</u>	<u>Points</u>
Upper	18 points only
Middle Upper	19-36 points
Middle Lower	37-54 points
Lower Upper	55-72 points
Lower Lower	73-90 points

The results showed that no family attained the needed points to be classified as upper class and the majority appear as lower upper class, 63.01% of the 1141 families studies. The details appear in Table 4.

The study on socioeconomic status had a total of 1141 families because it included the day enrollment, 895 students, plus the night enrollment, 246 students.

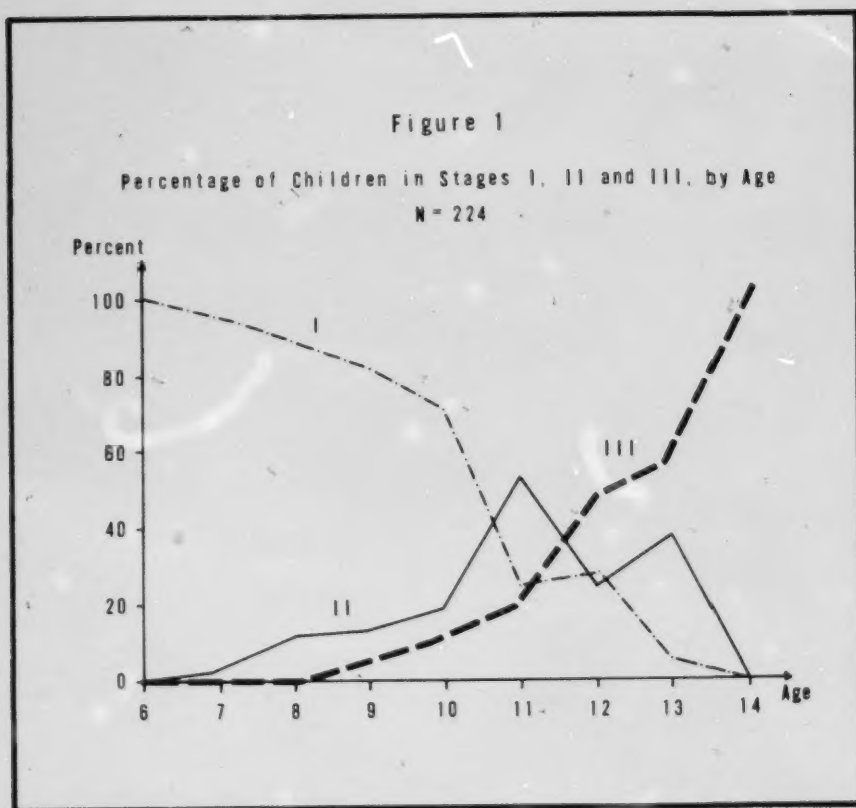
Sampling Technique

The population for the study, 847 students, was divided into nine strata according to age, starting with the six year old and ending with the 14 year old students. Two separate lists were prepared, one for boys and another for girls. The students on each list were classified by age groups; each age group was alphabetically ordered. From these stratified lists of the population, samples of 112 boys and 112 girls were randomly selected. The boys represented 25.45% of the male population, 440; and the girls represented 27.52% of the female population, 407. In Tables 5, 6, and 7 are details of the sample with regard to distribution by age and sex, grade and sex, and socioeconomic status.

Results and Discussion

The results regarding the age at which the children of the study reached the different stages demonstrated that 135, 60.27%, out of the total of 224 were in Stage I; 44, 19.64%, were in Stage II; and 45, 20.09%, were in Stage III. Looking at the performance of the children of different ages, it appears that all the 6 year old children were in Stage I while all the 14 year olds were in Stage III. The passage from Stage I to Stage III was uneven, with children moving from one stage to another at different ages. The earliest age at which any child was observed in Stage III was 8 years. Development to Stage III continued slowly until age 11 when greater numbers of children moved to Stage III. In regard to Stage II, the data suggested that there was not a consistent progression. To the contrary, there was an alternation of the ages at which children reached this stage. Figure 1 and Table 8 illustrate with more detail the passage of children of different age groups from one Stage to the other.

As graphically portrayed in Figure 1, one hundred percent of the six year olds are in Stage I and the percentage decreases gradually as age increases. The opposite happens in Stage III



where none of the six, seven and eight years old have arrived at this stage, but all children had by 14 years of age. Stage II is an intermediate stage, and the line in the frequency polygon exhibits a bimodal curve. This agrees with Piaget's description of Stage II, in that it represents a transitional phase where conflicting behaviours are manifested. This transitional stage and the succession of stages are important points in Piaget's theory. Therefore, the results of the study are in agreement with Piaget's theory even though the Brazilian children differ from the Genevan children at the age at which they reach the different stages. The data suggested that the Brazilian children arrive at the stages at somewhat later ages.

Age is important, but only in relation to the sequence of passage from one stage to another. Caution should be noted before making generalizations from these findings; this study was conducted in one location and with a sample of 224 children.

Chi-Square Analysis

Chi-Square tests were applied to the data following the analysis model used by Stoltman (1971). That researcher had developed a hypothetical distribution of stage development by age from Piaget's observational reports. The intent was to provide a model against which newly observed samples could be tested for significance of differences. The data from the Brazil sample were entered into the Chi Square matrix as the observed frequency while the hypothetical distribution was entered as the expected frequency. As with Stoltman's (1971) analysis model, the ages of the subjects in the sample were considered as the dependent variable. Thus, three Chi Square matrices were tested with each representing different age ranges for that proportion of the sample. Each of the Chi Square analyses suggested a significant difference between the hypothetical distribution modeled after the Geneva data and the observed ages-stages development of children in the Brazilian sample, Table 9, Table 10, Table 11.

The Chi-Square analyses suggested that the children in the sample progressed through the stages of territorial decentration at a lesser rate than did the children which Piaget observed in Geneva. Stoltman (1971) observed a similar trend in American children.

Analysis of Variance

The data were submitted to analysis of variance procedures to determine if significant differences in territorial decentration were observed by age, sex, and socioeconomic status of the subjects.

Sex X Stage: No significant differences were observed in the performance of boys and girls in the different stages. However, there were significant differences in performance by stage, as suggested in the earlier discussion. There was no significant interaction between sex and stage in the analysis model. Similar

results were obtained when the behavioral and explanation sub-tests were analyzed separately. Table 12 details the differences in the scores achieved by sex and stages, and the interaction effects of those variables. The findings are in agreement with the other studies that have investigated differences between the performance of boys and girls.

Age X Sex: There were significant differences in the mean scores achieved by different age groups with the scores increasing as age increased. The results revealed that, in general, the boys obtained somewhat higher scores than girls. Girls scored somewhat higher than boys in the earlier years, that is 6 and 7 years of age, while boys surpassed girls in scores beginning with 8 years of age. However, these differences were not significant. No significant interaction between age and sex was observed (Table 13). The effects of age confirm Piaget's findings in the sense that age plays an important role in the development of territorial decentration, but it does not determine the passage from one stage to the other.

Sex X Socioeconomic Status: There were no significant differences in the scores achieved by children of different socioeconomic status. The interaction of sex and socioeconomic status was not significant (Table 14). The effects of the socioeconomic condition of the parents of the children is a limitation of this study since the great majority of children were in the lower upper class, 66.52%. This concentration of children in one class makes difficult any interpretation of SES as an influencing or non-influencing factor in the performance on the Territorial Decentration Test.

In order to further explore effects on territorial decentration, a step-wise regression analysis was performed with the three independent variables: age, sex and socioeconomic status. The results revealed that age was the most important independent variable for explaining scores on the Territorial Decentration Test. Age was followed by socioeconomic status and sex. The three variables are significant at the .05 level (Table 15).

Implications

In Piaget's theory, Stage II is a transitional stage and therefore, greater pedagogic efforts should be directed to the children in this stage. The results of this study indicated that children between the ages of 9 and 12 are in this stage. Considering this fact, attention should be paid to operational tasks focusing on the notion of country. And since the part-whole relationship is only one type, it is important to emphasize others, e.g., brother-sister and right-left. It would also be advisable for the teacher to determine the stage development of children on mass, weight and volume conservation.

Distinctive implications emerge from this study for the geography curriculum. The corroboration of decentration stages

which follow the same sequence as cognitive development provides a basis for geography curriculum development. The geography curriculum should include perceptive exploratory experiences for children in stages I and II.

The Territorial Decentration Test may be used for classifying children in stages, and comparable props may be used as instructional materials that provide concrete experiences for the children. In addition, the test props might be used as guidelines for developing operatory tasks that could serve as learning activities. These devices may also suggest new teaching strategies to the teacher. They may also provide favorable conditions for the child to construct the notion of relationships between the whole and the parts and, therefore, help construct the logical relationships between country, state, county and city.

The Territorial Decentration Test is a practical measurement tool that permits a quantifying of the cognitive responses of the child. In addition, the props are easily prepared and used. The standardization of the instrument readily permits its application at the classroom level for classifying children in stages of territorial decentration.

The notion of country should not be taught as an abstract subject without reference to other geographic areas and their spatial relationships. It is safe to assume that the notion of country is constructed by the child through contacts in and out of school. It seems feasible to use the concept of nation as an integrating factor for the several subjects taught in the area of social studies.

The data encourage the researcher to infer from the territorial decentration concept, a world concept. The stages of territorial decentration could thus provide a model by which international understanding might be presented according to the child's developmental stage.

TABLE I

RANGE OF CRITERION SCORES USED FOR ASSIGNING TERRITORIAL STAGES

Sub-Tests	Stage I		Stage II		Stage III	
	Behav.	Explan.	Behav.	Explan.	Behav.	Explan.
A	0-3	0-1	4-6	1	7	2
B	0-2	---	3-4	---	5	---
C	0-2	0-9	3-6	>B	7	>B
D	0-2	0-10	3-6	>B	7	>B

TABLE 2

DISTRIBUTION OF STUDENT ENROLLMENT IN 1974,
BY GRADE AND SEX (N=895)

Grade	Sex		Female	%	Total	%
	Male	%				
K	33	7.14	20	4.62	53	5.92
1st	59	12.77	59	13.63	118	13.18
2nd	83	17.97	72	16.63	155	17.32
3rd	72	15.58	70	16.17	142	15.87
4th	70	15.15	55	12.70	125	13.97
5th	65	14.07	58	13.39	123	13.74
6th	31	6.71	38	8.78	69	7.71
7th	32	6.93	34	7.85	66	7.37
8th	17	3.68	27	6.24	44	4.92
Totals	462	100.00	433	100.01	895	100.00

TABLE 3
DISTRIBUTION OF THE POPULATION OF THE STUDY BY
AGE AND SEX (N=847)

Age	Sex				Total	%
	Male	%	Fem.	%		
6	42	9.55	19	4.67	61	7.20
7	45	10.23	60	14.74	105	12.40
8	50	11.36	52	12.78	102	12.04
9	68	15.45	73	17.94	141	16.65
10	75	17.05	50	12.29	125	14.76
11	51	11.59	54	13.27	105	12.40
12	50	11.36	42	10.32	92	10.86
13	38	8.64	43	10.57	81	9.56
14	21	4.77	14	3.44	35	4.13
Totals	440	100.00	407	100.02	847	100.00

TABLE 4
DISTRIBUTION OF FAMILIES BY SOCIOECONOMIC STATUS (N=1141)

Socioeconomic Status	Number of Families	Percentage
Upper	None	0.00
Middle Upper	29	2.54
Middle Lower	181	15.86
Lower Upper	719	63.01
Lower Lower	141	12.36
Blank	71	6.22
Totals	1141	99.99

TABLE 5

DISTRIBUTION OF THE CHILDREN IN THE SAMPLE BY AGE AND SEX (N=224)

Age	Male	%	Fem.	%	Total	%
6	11	9.82	6	5.36	17	7.59
7	11	9.82	16	14.29	27	12.05
8	13	11.61	14	12.50	27	12.05
9	17	15.18	20	17.86	37	16.52
10	19	16.96	14	12.50	33	14.73
11	13	11.61	15	13.39	28	12.50
12	13	11.61	12	10.71	25	11.16
13	10	8.93	11	9.82	21	9.38
14	5	4.46	4	3.57	9	4.02
Totals	112	100.00	112	100.00	224	100.00

TABLE 6

DISTRIBUTION OF THE CHILDREN OF THE SAMPLE BY GRADE AND SEX (N=224)

Grade	Male	%	Female	%	Total	%
K	5	4.46	6	5.36	11	4.91
1st	17	15.18	8	7.14	25	11.16
2nd	18	16.07	27	24.11	45	20.09
3rd	16	14.29	17	15.18	33	14.73
4th	19	16.96	18	16.07	37	16.52
5th	14	12.50	14	12.50	28	12.50
6th	12	10.71	7	6.25	19	8.48
7th	7	6.25	8	7.14	15	6.70
3th	4	3.57	7	6.25	11	4.91
Totals	112	99.99	112	100.00	224	100.00

TABLE 7

DISTRIBUTION OF THE CHILDREN OF THE SAMPLE
BY SOCIOECONOMIC STATUS (N=224)

S.E.S.	No. of Subjects	%
Upper (U)	0	0.00
Middle Upper (MU)	5	2.23
Middle Lower (ML)	41	18.30
Lower Upper (LU)	149	66.52
Lower Lower (LL)	25	11.16
Blank	4	1.79
Totals	224	100.00

TABLE 8

AGE AT WHICH SUBJECTS REACHED STAGES I, II, III AND PERCENTAGE OF THEM IN EACH STAGE. N=224

Age	Number Subjects	Stage I				Stage II				Stage III			
		M	F	Total	%	M	F	Total	%	M	F	Total	%
6	17	11	6	17	100.00	0	0	0	0.00	0	0	0	0.00
7	27	11	15	26	96.30	0	1	1	3.70	0	0	0	0.00
8	27	10	14	24	88.88	3	0	3	11.11	0	0	0	0.00
9	37	14	16	30	81.08	1	4	5	13.51	2	0	2	5.40
10	33	11	12	23	69.70	5	1	6	18.18	3	1	4	12.12
11	28	3	4	7	25.00	6	9	15	53.57	4	2	6	21.43
12	25	2	5	7	28.00	4	2	6	24.00	7	5	12	48.00
13	21	0	1	1	4.76	6	2	8	38.10	4	8	12	57.14
14	9	0	0	0	0.00	0	0	0	0.00	5	4	9	100.00
Totals	224	62	73	135	60.27	25	19	44	19.64	25	20	45	20.09

TABLE 9

CHI-SQUARE ANALYSIS FOR INDEPENDENCE BETWEEN AGE
DISTRIBUTION ONE AND PIAGETIAN STAGES

AGE DISTRIBUTION ONE	Stages						Row Totals
	I		II		III		
6-7:6 years	E	19	E	5	E	3	
	O	27	O	0	O	0	27
7:7-9:6 years	E	13	E	39	E	13	
	O	58	O	7	O	0	65
9:7-14:11 years	E	13	E	26	E	93	
	O	51	O	37	O	44	132
Column Totals		45		70		109	224

$\chi^2=347.9$ df 4 P <.01

TABLE 10

CHI-SQUARE ANALYSIS FOR INDEPENDENCE BETWEEN AGE
DISTRIBUTION TWO AND PIAGETIAN STAGES

AGE DISTRIBUTION ONE	Stages						Row Totals
	I		II		III		
6-7:11 years	E	31	E	9	E	4	
	O	43	O	1	O	0	44
8-9:11 years	E	13	E	38	E	13	
	O	54	O	8	O	2	64
10-14:11 years	E	12	E	23	E	81	
	O	39	O	35	O	42	116
Column Totals		56		70		98	224

$\chi^2= 263.8$ df 4 P <.01

TABLE 11

CHI-SQUARE ANALYSIS FOR INDEPENDENCE BETWEEN AGE
DISTRIBUTION THREE AND PIAGETIAN STAGES

AGE DISTRIBUTION THREE	Stages						Row Totals
	I		II		III		
6-8:6 years	E	41	E	12	E	6	59
	O	56	O	3	O	0	
8:7-10:6 years	E	14	E	43	E	15	72
	O	59	O	10	O	3	
10:7-14:11 years	E	9	E	19	E	65	93
	O	21	O	31	O	41	
Column Totals	64		74		86		224

$\chi^2=230.2$ df 4 P < .01

TABLE 12

ANALYSIS OF VARIANCE OF TOTAL SCORES ON THE TERRITORIAL
DECENTRATION TEST BY SEX AND STAGE

Sources of Variation	DF	SS	MS	F
Sex	1	124.54	124.54	2.68
Stages	2	59365.66	29682.83	638.08*
Sex/Stages	2	147.53	73.77	1.59

* Prob < .01.

TABLE 13

ANALYSIS OF VARIANCE OF TOTAL SCORES ON THE TERRITORIAL
DECENTRATION TEST BY AGE AND SEX

Source of Variation	DF	SS	MS	F
Age	6	38063.18	6343.86	42.73*
Sex	1	731.27	731.27	4.93
Age/Sex	6	416.50	69.42	0.47

*Prob. <.01

TABLE 14

ANALYSIS OF VARIANCE OF TOTAL SCORES ON THE TERRITORIAL
DECENTRATION TEST BY SEX AND SOCIOECONOMIC STATUS

Source of Variation	DF	SS	MS	F
Sex	1	966.86	966.86	3.20
SES	3	4395.54	1465.18	4.85
Sex/SES	3	459.40	153.13	0.51

TABLE 15

SUMMARY TABLE FOR STEPWISE REGRESSION

Step Number	Variable Entered	Multiple R ²
1	Age	0.7421
2	SES	0.7509
3	Sex	0.7577*

* Prob. <.05

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CHILDREN'S CONCEPTION OF TERRITORY: UNITED STATES

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ABSTRACT

A research sample of 204 children in Georgia, U.S.A., were tested to determine their territorial concept and decentration according to Piaget's theory of spatial stages. The subjects were observed to pass through the same sequence, but at somewhat later ages than the Swiss children in Piaget's sample. The effects of age, sex, and socioeconomic status on territorial decentration were examined.

LE CONCEPT DE TERRITOIRE CHEZ LES ENFANTS DES ETATS-UNIS:

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Etats-Unis

RÉSUMÉ

Une enquête fut menée parmi 204 enfants de Georgie (Etats-Unis) pour déterminer leur conceptualisation territoriale et leur décentration d'après la théorie de Piaget sur les différents niveaux du concept d'espace. On remarqua que les sujets considérés suivaient les mêmes étapes décrites en théorie par Piaget, mais à un âge un peu plus avancé que les jeunes Suisses dans les exemples de Piaget. L'article considère les effets de l'âge, du sexe et du niveau socio-économique sur la décentration territoriale.

ДЕТСКОЕ ПОНЯТИЕ ТЕРРИТОРИИ: СОЕДИНЁННЫЕ ШТАТЫ.

И. Столтман
Соединённые Штаты

ВЫДЕРЖКА

Как образец исследования, 204 ребёнка в штате Джорджия в Соединённых Штатах было подвержено испытанию для определения их понятия территории и децентрации, соответственно теории Пиаже, о пространственных стадиях. Наблюдения показали, что подверженные испытанию проходили все этапы в последовательности отмеченной в теории Пиаже, но возрастом были несколько старше швейцарских детей, испытанных Пиаже. Влияние возраста, пола и социально экономического положения на территориальную децентрацию - подвержены исследованию.

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Children's Conception of Territory: United States

J. Stoltman
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The United States does not have a nationally adopted elementary geography or social studies curricular sequence which is mandated to state and local boards of education. Instead, the sequence reflects the evolution of curriculum through three major forces: 1) local preferences and options; 2) professional educational leadership influences in elementary education, and 3) commercially published educational materials. The third force, commercially published educational materials, currently suggests that the major social studies and geography curricular sequence in the United States is the expanding environment. That curricular sequence is expected to complement the spatial stages theory of Jean Piaget (1928, 1951) discussed in the earlier article by Stoltman. This research study was designed to investigate the relationships between Piaget's theory and the expanding environmental curriculum using an American sample of children. Opportunities also existed for investigating other variables of the American sample used in the study. Therefore, several *a priori* hypotheses were designed. Each is accompanied by a short rationale to clarify the researcher's intent.

Statements of Hypothesis

The first three hypotheses test the comparability of Piaget's spatial stages to the development of the concept of territory in an American sample of children. Several aspects of Piaget's study from which the theory was developed made testing it against a new sample difficult. First, Piaget did not publish the examination format used for the interview or task. That absence necessitated following a textual account and undertaking replication from a vague description. Second, the distribution of children in the three stages by age was not published. Piaget provided age equivalents for the stages, but was careful to clarify that age ranges overlapped one another.

A hypothetical distribution was designed by the investigator to incorporate Piaget's reference to variance in ages and stages. The distribution formalized an expected frequency in the three stages between six and twelve years of age. Also, three hypothetical age ranges were considered in search of a goodness of fit to the cell by cell distribution. The distribution allowed for a minimum of thirty percent variance from Piaget's theoretical cells for aggregation. As age was varied for fit, the thirty percent variance in the cells further adjusted to overlap in ages and stages which Piaget failed to identify precisely. The hypothetical age-stage fits assumed a linear relationship between children's conception of territory and their ages (Table 1).

H₁ - It is hypothesized that there is no significant difference between spatial stages development as postulated by Piaget and the development of the American sample on those same criteria.

In the past, researchers have speculated regarding concept development differences between males and females (Anastasi, 1949; Tyler, 1966). One researcher found a significantly greater degree of territory conception among boys than among similarly aged girls (Jahoda, 1963). Therefore, differences between the sexes with regard to territory conception were investigated. Although the magnitude of the study was such that differences can probably not be explained, their presence can be ascertained within certain limits of confidence and may lead to further investigations.

H₂ - It is hypothesized that there is no significant difference between the sexes and concept of territory development.

Race as a variable in territorial concept development was also investigated. The objective in analyzing variance between the races was not to refute or support other claims regarding the general aptitude of either group (Tyler, 1966; Jensen, 1969). Rather, a large proportion of the black children were socio-economically disadvantaged. The observations of Deutsch and his associates (1964, 1967) regarding the limited territorial knowledge of disadvantaged children are presently on record. In another study, Imperatore (1970) observed a significant relationship between children of lower socio-economic status and black children. His North Georgia sample was similar to those children used in this study. The implication is that black children are most frequently in the lower socio-economic group.

H₃ - It is hypothesized that there is no significant difference between the races and their concept of territory development.

There are few comparisons of urban and rural children's performance on tests other than achievement and scholastic aptitude (Tyler, 1966). In general, urban children out perform rural children. The phenomena which may affect territorial concept development are the environments experienced by urban and rural children. Such environments vary with regard to geographical setting and social structure, including differences in family structure, economic base, and general nutrition. One recent study revealed the county as an important territorial orientation of family units in rural North Georgia (Bohland, 1970). Such county attachment may affect their territorial concept in general.

- H - It is hypothesized that there is no significant difference in territorial concept development between urban and rural children.

Educational research during recent years has viewed certain variables as critical in purporting cause-effect relationships (Fox, 1970). Those variables which purportedly affect the concept of territory are age and socio-economic status of parents (Piaget, 1951; Jahoda, 1964). The effect of these variables on the territorial concept development was determined by correlational procedures. The variables were analyzed independently for significance of relationship with the dependent variable. Also, the combined effects of the two variables in explaining variance in the dependent variable were analyzed.

- H₅ - It is hypothesized that there is no significant relationship between age and concept of territory development.
- H₆ - It is hypothesized that there is no significant relationship between socio-economic status of parents and concept of territory development.
- H₇ - It is hypothesized that there is no significant multiple relationship between age and socio-economic status of parents and concept of territory development.

For the purposes of this study, the author has selected the five (.05) percent level of significance. The null hypothesis is rejected if the probability of making a Type I error is reduced to .05 or less. A Type I error occurs when the hypothesis is correct, but is rejected by the researcher (DuBois, 1965).

Research Instrument

To conform to the requirements of an empirical test of theory, four individual evaluation tasks were designed: 1) verbal territorial identification; 2) verbal territorial relationship; 3) territorial inclusion using written symbols; and 4) territorial inclusion using props. The four tasks included the basic Piagetian approaches, not withstanding Piaget's less than adequate description of methodology in many of his studies, including the spatial stages research.

Verbal Territorial Identification (Subtest A)

Territorial concept research is contingent to a degree upon the verbal knowledge of children. The format enabled the researcher to assess the verbal territorial titles of the child. Also, the child's familiarity with map representations of the territories was determined. Prior researchers were not concerned with the child's ability to verbally identify territories by their political titles. By asking "What is the name of the city or town you live in?", the present researcher examined the child's

knowledge of the political title of the territory without introducing the title first or facilitating recall by using the title.

Verbal Territorial Relationship (Subtest B)

In order to disclose the child's conception of the relationship of one territory to another, the child was asked, "Where is town X?" Immediately following an acceptable response, the child was asked, "Where else is town X?" The objective was to determine verbally whether the child considered town X in relationship to and included within either county X, state X, or nation X, or any combination of the three. Similar questioning concerning county, state and nation was also undertaken. Techniques similar to these were incorporated in prior studies, but with less rigorous sequences and standardizing of procedures.

Territorial Inclusion Using Written Symbols (Subtest C)

In this task, the child was presented with a series of standardized one inch circles on paper. The examiner identified the territory which the circle represented. The child was then requested to draw a second circle on the page showing a territory identified by the examiner. The objective was the territorial relationship which the child assigned the two circles by virtue of the placement of the second circle. A verbal inquiry followed which asked the child to justify the placement of the second circle. The presence or absence of territorial inclusion principles in the child's reasoning were thus ascertained.

Territorial Inclusion Using Props (Subtest D)

The final task incorporated five props and required the child to perform several territorial relationship operations. The child was told what each prop represented by political title. The following props were used: one gold disk, 22 mm in diameter; one tan rectangle, 40 by 50 mm; two white rectangles, 65 by 90 mm; one black rectangle, 205 by 225 mm. The children were requested to manipulate the props into correct territorial arrangement. In addition, they were asked to justify the prop placement with an explanation.

Content Validity

Content validity was attained by using the political titles of territories within the child's environment. Local political titles were usually household words encountered in shopping and educational trips. The larger territories, e.g., county, state and nation constituted the only possible correct responses.

County was included in the present sequence since it was locally and regionally germane as a unit of territory within the study area. It was recognized that county was not locally germane in numerous areas where the test could be administered. Therefore, local territorial content was maintained by substitution of a locally germane territory, e.g., parish, township, borough.

Similarly, the examiner inserted valid larger territories by political titles throughout the test. By incorporating such a format, the test was usable in numerous situations where territorial titles vary.

Test Administration

Four examiners were trained to administer the instrument and assisted with varying amounts of data collection. All had teaching experience and had completed Master's degrees in education. No examiner tested more than fourteen children in a single day due to time and fatigue factors. All children were interviewed in conformance with the directions contained in the Manual. At the time of collection these additional data were obtained from either the child or school records: date of birth, sex, race, occupation and education of head of household for socio-economic assignment (Hollingshead, 1957), rural or urban residence, and grade.

Research Sample

As an empirical test of theory, the present study sampled children of similar age ranges as prior studies. However, it was considered beneficial to include children representing several types of geographical and social environments. Two components of the sampling problem were apparent: 1) convenience dictated the selection of schools enrolling elements of the North Georgia universe of children, and 2) an appropriate procedure for teacher or researcher was necessary to select representative individuals without introducing a bias.

Selection of Schools

Problems inherent with research that involved testing of children were pervasive in several of the school districts contacted. Consequently, they refused to approve the research project. Of the thirteen school districts originally considered, six elected to participate. Within those six districts, ten participating elementary schools were identified.

Stratification of Sample

It was necessary to stratify population variables to permit testing of the hypotheses. As a result, the sample of children included in the study were stratified four ways (Table 2).

The grade level stratum was controlled by the graded division incorporated within the school structure. Every participating school used a graded system. The high correlational value expected between age and grade level precluded requesting children by age.

The rural-urban stratum was determined by the type of general population the school served. In no instance did

administrators have difficulty defining their student population as either rural or urban, or stating an approximate percentage for each group. Also, the residential setting, either rural or urban, for each child was determined during the interview or obtained from cumulative records. Four schools served predominantly rural populations and six served urban populations.

Administrators were also questioned regarding the sex ratio of the school population. In most instances exact figures were not readily available, but assurance was given that it fell within the range forty to sixty percent. Because such data were not available from more reliable sources, the administrators' estimates were accepted.

Information about racial proportions was also obtained from school administrators. No school was segregated, but several schools were either predominantly white or black. In those instances, only children representing the dominant racial group were sampled. Both blacks and whites were sampled when the proportionality was reported to be approximately equal, with one exception. Only whites in that school were sampled for two reasons: 1) whites were needed to meet sample stratification totals, and 2) school personnel were hesitant to approve the examination of black children. Four schools were predominantly black, two predominantly white, and four enrolled approximately equal numbers of blacks and whites by grade level.

Sampling Procedures

A sample of 204 children was randomly selected from a population of 2292. The sample comprised 8.9% of the population. Children tested were randomly selected from alphabetical classroom rosters by using a table of random numbers (Snedecor, 1962). In particular, the sampling followed four procedural steps: 1) the number of children in a particular stratum was determined. Absentees, severely emotionally disturbed, foreign born, and educable mentally retarded children were excluded from the population providing the sample, 2) random digits were selected from the table of random numbers, 3) homeroom classes were assigned a random order with which to be included, such classrooms were not ability grouped in any instance, and 4) the randomly selected children were tested.

Between 6.7% and 13.0% of the grades one through six children in each school were tested. School enrollments ranged from 195 to slightly less than 500 students. Therefore, the sample strata were drawn from somewhat varying population totals. An equal number of males and females were included in the sample, or 102 in each category. Thirty-four children were sampled from each grade level, one through six. Equal numbers of children were sampled by race and sex in the various grade levels.

Analysis of Data

Hypothesis one was tested using the Chi Square Test for Goodness of Fit between the observed age and territorial stage frequencies and the expected frequencies using the hypothetical Piagetian spatial stages (Table 1). Chi Square matrices were prepared and the probability of correspondence of observed and expected distributions determined (Table 3A, 3B, 3C).

Each hypothetical age fit (Table 1) resulted in a significant difference in goodness of fit between the observed territorial stages and the expected Piagetian spatial stages. Therefore, significant differences ($p < .001$) necessitated acceptance of the null hypothesis that Piaget's spatial stages did not fit the development of the American sample of children used in the study.

The hypotheses of no significant difference between the sexes, races, and urban-rural children were tested using a Modified Analysis of Least Squares technique. The computer program accommodated unequal subclass numbers and cell frequencies. For analysis purposes, age was categorized into seven cells (Table 4). The three dichotomous variables, sex, race, and rural-urban, were entered against age in separate matrices.

Hypothesis 2, sex differences, was accepted in the null form. Analysis of variance of mean scores on the Territory Conception Test indicated that no significant difference existed between the sexes (Table 5).

Hypothesis 3, race differences, was rejected in the null form. Analysis of variance of mean scores on the Territory Conception Test indicated a significant difference existed between the races (Table 6).

Hypothesis 4, urban-rural children, was accepted in the null form. Analysis of variance of mean scores on the Territory Conception Test indicated that no significant difference existed between urban and rural children (Table 7).

Hypotheses 5 and 6 incorporated linear correlation to test for significance of relationship between age and territorial concept development, and socio-economic status and territorial concept development. The dependent variable was the total score on the Territory Conception Test. Independent variables were age in months and the non-converted Hollingshead Two Factor Index of Social Position (1957), ranging from eleven to seventy-seven.

A relationship of .536 ($< .01$) existed between age and territorial concept development. Therefore, Hypothesis 7 was rejected in its null form. Age was significantly related to territorial concept development (Table 8).

A relationship of $-.484$ ($<.01$) existed between socio-economic status and territorial concept development. Therefore, Hypothesis 7 was rejected in its null form. Socio-economic status was significantly related to territorial concept development (Table 8).

To test Hypothesis 7, the multiple relationship between age, socio-economic status and the dependent variable was computed (Table 9). The independent variables, age and socio-economic status, explained approximately fifty percent of the variance in the dependent variable. Hypothesis 7 was therefore rejected in the null form. The independent variables explained a significant amount of the variance in territorial concept development. Territorial concept development as indicated by the total score on the Territory Conception Test can be predicted by age in months and non-converted socio-economic status (Hollingshead, 1957).

In summary, a significant difference was found between the hypothetical Piagetian spatial stages and territorial concept development of the American sample of children. Neither the main effect of sex nor urban-rural residence resulted in significantly different mean scores on the Territory Conception Test. The only significant difference in mean scores was between black and white children. The independent variables age and socio-economic status were significantly related to territorial conception. Together they accounted for fifty percent of the variance in territory concept development.

Discussion and Conclusions

The incongruencies between Piaget's theoretical spatial stages and the territorial stages development of a similarly aged sample of American children may result for several reasons. Differences in methodology and data collection, variations in data analysis, characteristics of the sample and sampling procedures, and cultural differences between American and Swiss children may all attribute, more or less, to the lack of correspondence. Each of these possible sources of variation between the theoretically expected and observed frequencies were examined.

Data Collection Methodology

Any consideration of instrument comparability necessitated recognizing the nationalism component of Piaget's research (1951). The influence of nationalism in the assignment of stages was not revealed by Piaget. It is possible that nationalism was reflected in Piaget's stages, rather than the concept of territorial relationships. Jahoda (1964) recognized the same possibility and concluded that Piaget had indeed weighed nationalism more importantly in assigning stages than the territorial relationships elicited using the circle placement task.

In order to investigate the alterations in territorial stage assignment which resulted when only the Piagetian circle task was used, territorial stages were assigned using only Subtest C criteria. The resultant differences between the theoretically expected and observed stages and ages frequencies for the three age fits (Table 2) were significant ($<.001$). Therefore, the probability that Piaget had used the task requiring the placement of circles as the key determinant of stages was doubted. It was highly probable, as Jahoda speculated (1964), that Piaget relied upon nationalism responses in assigning stages.

A final difference in data collection was the present researcher's conscientious attempt not to teach the child responses for items through wording and sequence of earlier items on the Territory Conception Test. Whereas Piaget had primed the child, so to speak, by introducing political verbal titles early in the interview, the present method required the child to provide the initial verbal titles. The researcher tended to discount the current procedure as a serious handicap to overall performance, or in violation of Piaget's premise. Overall performance on the test was not contingent upon the recall of political titles by the child since such titles were introduced by the examiner in Subtest B, C, and D, in keeping with Piaget.

Data Analysis

An inappropriate cell frequency assignment of the expected hypothetical distribution, based on Piaget's reports, was a major consideration in searching for variance (Table 1). However, that inadequacy was waived upon inspecting the cells of the X^2 distribution (Table 3). Any alteration increasing the theoretically expected frequency in Piaget's expected cells of aggregation would also increase the X^2 value, resulting in a greater difference between the expected and observed distributions. The problem rested principally with the oldest children who remained in Stage I.

The more rigorous control of age and response sets in the determination of stages may also have caused a degree of discrepancy between Piaget's theory and the American sample. Piaget did not rely upon statistical procedures, whereas the present research was dependent upon them. The use of such techniques might be expected to reveal minor differences. The researcher believed the magnitude of the X^2 values was indicative of differences in basic assumptions and not the result of differences in statistical procedures.

Sampling

The Swiss sample of children used by Piaget was urban while the present study sampled both urban and rural children. The present investigator viewed separately the rural and urban children

and found neither group conformed to the theoretical distribution. The present findings were also in agreement with Jahoda (1964). He observed that urban Scottish children did not conform to Piaget's spatial stages theory.

Although Piaget did not elaborate upon the socio-economic status of the children he interviewed, that variable was taken into account in the present research. The socio-economic status of inner city children in general and rural children in the South is usually low. The present sample proved to be no exception and socio-economic status tended to be upper lower and lower class (Hollingshead, 1957).

Recognizing the possible role of socio-economic status in performing tasks similar to those incorporated in the research instrument, as attested to by Jahoda (1964), a χ^2 analysis was made of those children in socio-economic classes I, II, and III (Hollingshead, 1957). Significant differences ($<.001$) were found between the Piagetian theoretically expected frequencies and those observed when all subtests were used in territorial stage assignment. Similar differences were also found when only the subtest C criteria were used. Hence, the middle and upper middle class children in the sample did not conform to the theoretical stages distribution.

Cultural Differences

A final explanation of lack of correspondence between the expected and observed distributions falls within the realm of cultural differences between the United States and Switzerland. Piaget (1951) considered the possibility that Genevan children were a special case, but was inclined to apply the spatial stages theory to all children. However, the findings of the present study and those of Jahoda (1963) tend to refute the universality of the phenomenon, although absolute refutation will require more extensive research.

The cultural differences which Swiss children observe between cantons are undoubtedly much more apparent than those which American children observe between counties or states. The United States incorporates numerous political territories without overt cultural differences. Switzerland's overt cultural differences include multilingualism, canton dialects, and sometimes habits of dress associated with a specific territory. These variables functioning in the child's environment may explain the overall lack of fit between Piaget's theory and territorial stages.

It would be presumptuous for the researcher to propose a theoretical alternative to Piaget's spatial stages. The sample incorporated in the study is too small and geographically confined to assure universal application. However, several speculations regarding how an alternate theory might depart from Piaget's spatial stages theory are in order.

First, it seems certain that a theory of territorial stages would include older children. Although purely speculative, some children in the general population may not attain territorial stage three until fifteen years of age. A few may not attain it by that age, although the impact of the school curriculum would probably assure the attainment of stage three in most cases.

Second, separate theoretical norms may be necessary for rural and urban, disadvantaged and non-disadvantaged children. Life experiences in general, school experiences in particular, which result in territorial decentration seem to be absent from the life styles of the disadvantaged children.

Third, with the upward age extension of stages two and three, the middle age range may be a transitional zone rather than a definite stage. The distribution of that middle age group may be about equal between stages one, two, and three. Again, this is speculation and is unsubstantiated by the present data.

A somewhat more definitive report of research with which to compare the present data is that by Jahoda (1964). The geographical stages he observed in Scottish children are consistent with the American sample when equivalence of political territories used in the two cultural settings is assumed. It must be realized that Jahoda incorporated no territory comparable to the county.

Jahoda relied upon verbal knowledge of the territories in assigning stages. Therefore, the Verbal Territorial Identification (Subtest A) performance of the children in the American sample was analyzed. Ninety-two percent of the children were able to name the city or town they lived in or near. Fifty-eight percent of the children correctly named their state. The county was correctly named by thirty-four percent of the children and the nation was named by thirty-two percent. Verbal identification of territories in general, therefore, progressed from city-town to state to nation as age increased. The county became part of the child's verbal repertoire about the same time as the nation.

The investigator then determined the difficulty in conceptualizing the four territories using both verbal and prop manipulation responses. The difficulty for each of the territories was determined by computing the average item difficulty for the territories. Such an average, it was believed, provided an estimate of the difficulty the sample had in conceptualizing the relationships of territories.

In general, the children in the sample found the county the most difficult territory to conceptualize. The next most difficult was the city-town. It was followed by the nation though it had approximately the same difficulty. The territory

which the children had conceptualized to the greatest degree was the state. The observed conceptualization difficulties tended to be at variance with the observations of Piaget (1951) and Jahoda (1964). They reported a somewhat consistent decentration of territory and conceptualization difficulty.

TABLE 1
HYPOTHETICAL DISTRIBUTION OF PIAGET'S SPATIAL STAGES
(BY STOLTMAN)

Age Groups	Stage			Total
	I	II	III	
1	70%	20%	10%	100%
2	20%	60%	20%	100%
3	10%	20%	70%	100%
Total	100%	100%	100%	

TABLE 2
SUMMARY OF STRATIFICATION VARIABLES

Stratum	Variable
One	Grade Level (1-6)
Two	Rural - Urban
Three	Race (Black-White)
Four	Sex (Male-Female)

TABLE 3
 χ^2 EXPECTED AND OBSERVED FREQUENCIES

A					
Age Range	Stage	I	II	III	
6.0-7.6	E	30.0	8.0	4.0	
	O	41.0	1.0	0.0	
7.7-9.6	E	13.0	41.0	13.0	
	O	52.0	8.0	7.0	
9.7-12+	E	10.0	19.0	66.0	
	O	38.0	30.0	27.0	$\chi^2 270.67^*$
B					
6.0-7.11	E	39.0	11.0	5.0	
	O	54.0	1.0	0.0	
8.0-9.11	E	13.0	40.0	13.0	
	O	45.0	11.0	10.0	
10.0-12+	E	8.0	17.0	58.0	
	O	32.0	27.0	24.0	$\chi^2 213.07^*$
C					
6.0-8.6	E	53.0	15.0	7.0	
	O	70.0	5.0	0.0	
8.7-10.6	E	13.0	40.0	13.0	
	O	37.0	15.0	14.0	
10.7-12+	E	6.0	13.0	44.0	
	O	24.0	19.0	20.0	$\chi^2 144.39^*$

* χ^2 $p < .001$

TABLE 4
AGE CATEGORIES

Category	Age
1	6.0-6.11
2	7.0-7.11
3	8.0-8.11
4	9.0-9.11
5	10.0-10.11
6	11.0-11.11
7	12.0+

TABLE 5
ANALYSIS OF VARIANCE ON TERRITORY CONCEPTION TEST:
SEX, AGE, AND INTERACTION

Source	DF	SS	MS	F
Model	13	26283.13	2021.78	7.61
Sex	1	201.70	201.70	.76
Age	6	25054.47	4175.75	15.71*
Sex X Age	6	779.87	129.98	.49
Error	190	50512.30	265.85	

* $p < .01$

TABLE 6

ANALYSIS OF VARIANCE ON TERRITORY CONCEPTION TEST:
RACE, AGE, AND INTERACTION

Source	DF	SS	MS	F
Model	13	45159.35	3473.80	20.86
Race	1	13735.03	13735.03	82.49*
Age	6	25100.38	4183.40	25.13*
Race X Age	6	3554.85	592.47	3.56*
Error	190	31636.08	166.51	

*p < .01

TABLE 7

ANALYSIS OF VARIANCE ON TERRITORY CONCEPTION TEST:
URBAN-RURAL, AGE, AND INTERACTION

Source	DF	SS	MS	F
Model	13	26233.51	2017.96	7.58
Urban-Rural	1	586.68	586.68	2.21
Age	6	22879.32	3813.22	14.33*
Urban X Age	6	569.59	94.93	.36
Error	190	50561.92	266.12	

*p < .01

TABLE 8

RELATIONSHIP BETWEEN TERRITORY CONCEPT DEVELOPMENT
AND AGE AND SOCIO-ECONOMIC STATUS

Y	r
Age	.536*
SES	-.484*

* p < .01 (df = 202)

TABLE 9
MULTIPLE R ENTRY ORDER

Y	Entry	R	RSQ	F
Age	1	.5359	.2872	
SES	2	.7090	.5070	101.60*

* $p < .01$ (df - 2/201)

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GEOGRAPHIC KNOWLEDGE AS MEASURED BY PIAGET'S SPATIAL STAGES

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ABSTRACT

A sample of children in Indiana, U.S.A., were examined to test the appropriateness of Piaget's Theory of Spatial Stages. Data suggested that the sample was at variance with the expected development, progressing through the stages at later ages than Piaget theorized. The effects of sex, urban-rural residence, socioeconomic status, and general classification skills on spatial stages development were examined. Implications for classroom instruction, curriculum planning and pupil assessment are discussed.

LES CONNAISSANCES GÉOGRAPHIQUES MESURÉES D'APRÈS LES ÉTAPES DE CONSCIENCE SPATIALES DE PIAGET:

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RÉSUMÉ

On a donné un test à un groupe d'enfants de l'Indiana (Etats-Unis) pour mettre en application la théorie de Piaget sur les étapes de conscience spatiale. Les renseignements obtenus suggèrent que le groupe choisi n'a pas confirmé le déroulement des étapes attendues. Les enfants de ce groupe passeront les différentes étapes à un âge plus avancé (plus tard) que dans les théories de Piaget. L'article examine les effets de la détermination du sexe, du comice urbain ou rural, de niveau socio-économique et des compétences classificatrices

sur le développement des étapes de conscience spatiale. L'article discute les implications de ces données pour l'enseignement, l'organisation des programmes et l'évaluation des élèves.

ЗНАНИЕ ГЕОГРАФИИ ИЗМЕРЕННОЕ ПРОСТРАНСТВЕННЫМИ
этапами (стадиями) Пиаже.

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ВЫДЕРЖКА

Обоснованность теории территориальных или пространственных этапов или стадий Пиаже, была проверена на группе детей в штате Индиана. Результаты этого опыта заставляют предполагать, что, в данном случае развитие было отлично от ожидаемого и проходило через этапы в более старшем возрасте, чем предполагалось, согласно теории Пиаже. Было подвержено исследованию влияние пола, места жительства (город или сельская местность), социально экономического положения и общая классификация знания на пространственных этапах развития. Дискутируется причастность к изложению в классе, учебному плану, и измерению знаний учеников.

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Geographic Knowledge As Measured
By Piaget's Spatial Stages

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The developmental theories of Jean Piaget have been of great interest to educators and psychologists since they have been concerned with examining the course of a child's cognitive growth. While Piaget has examined such wide areas of cognitive development as reasoning, judgement, and logical thought processes, he has continually used what have been traditionally thought of as school subject areas to explain and clarify his cognitive developmental theories. This paper examines one area of the child's knowledge of geography and geographic relationships. In addition, this paper examines the relationship between the child's general classification-class inclusion abilities and more specialized geographic classification and class inclusion abilities.

Piaget (1928, 1951) proposed a spatial stages theory which attempted to explain how the child develops a comprehension of the various geographical units in which he lives, and gradually integrates these units into a logically correct and consistent hierarchy. Piaget observed that Swiss children, when asked about their city, state, and nation, exhibited marked peculiarities and appeared to pass through rather distinct developmental stages. In the first stage, all the territories, regardless of actual size, were of approximately equal magnitude in the children's eyes. Further, the territories of town, canton, and national state were mutually exclusive, and no one territory was singled out. Piaget also noted that children at stage one, up through approximately age seven, usually had no real idea of the territory in which they lived. Often they had only the vaguest notions about their own city.

Stage two children, ages 8-9, were distinguished by their ability to correctly represent the Geneva-Switzerland relationship as a smaller circle inside a larger circle. This was a further stage in the process of decentration, which Piaget had described as a moving outward from the center. However, while Piaget noted that the child could express the verbal formula that city was included in the state, and could often demonstrate this arrangement spatially when requested to do so, he appeared not to understand the logical inclusion of one inside the other. The child did not understand that a part which is fitted into the

whole does actually form part of the whole. Piaget speculated that while the decentration and integration of territories was indeed underway in these children, it was a transition stage which could, and did, cover a multitude of misconceptions.

During the third stage, which Piaget placed at about ages 10-11 and onward, the child understood the correct territorial and logical relationships and was able to synthesize them correctly. It was in this stage that the notion of homeland or nation became a reality in the child's mind. Stage three was marked by the child's ability to decenter territory to the national level so that the correct inclusion relationship between city, canton, and nation was realized both territorially and logically. The child was able to demonstrate this relationship spatially as well as verbally.

Other examiners have investigated Piaget's notion of spatial stages. Jahoda (1964) attempted a replication study using Scottish children between the ages of six and eleven years from two socioeconomic classes in Glasgow. While Jahoda felt that there was general agreement with Piaget's hypothesis, he also found variances in several areas. Further, almost one-quarter of Jahoda's subjects had to be excluded from Piaget's stages since they did not fit Piaget's descriptions of those stages. Jahoda believed that Piaget had relied upon the children's responses to questions of nationality in assigning children to stages. Jahoda observed that the comprehension of spatial relations does not necessarily precede that of nationality relations. He suggested that if children's abilities on both verbal and spatial understanding were used, a wide variance would be noted from Piaget's stages.

Jahoda also introduced socio-economic status into his study and found wide differences between the rate of progression through the stages for both of his socio-economic groups. Scottish children in general seemed to lag behind the norms proposed by Piaget, and working class children progressed more slowly through the stages than did middle class children.

Stoltman (1971) also attempted to verify Piaget and Jahoda's results using a sample of American children. Stoltman constructed hypothetically expected frequencies based upon Piaget's descriptions of stages and found that the observed frequencies of children's responses were significantly different from the theoretically expected frequencies. The American children were decentering at a lesser rate than was theorized. These children, like the Scottish children, progressed more slowly through the stages than did Piaget's sample.

Like Jahoda, Stoltman found significant differences in the spatial stage development of children from lower socioeconomic backgrounds. They progressed through the stages more slowly than their middle class counterparts. Stoltman also found differences between races, with black children progressing through the stages more slowly than white children. The researcher attributed much

of this effect to the overlap between social class and race, since most of the black subjects were included in the lower socioeconomic classes. Stoltman reported no significant difference between children from different residential areas but noted that this contradicted most of the previous research on urban-rural residence.

The authors examined a large sample of American children on several Piagetian territorial tasks, and concluded that while age-stage relationships appeared to be present, there was variance in the rate of territorial concept attainment, and further, that there was a wide variance between expected performance on Piagetian stages and the children's actual observed performance, thus giving support to Jahoda and Stoltman. In addition, the authors examined children's conceptions of nationality and foreignness and found that American children also lagged behind the age norms predicted by Piaget. Further, by constructing stages based upon the child's ability to name and comprehend foreign countries, Rand and Towler found that most children confused the territorial designations of states, countries, and continents, and were only able to separate these concepts at a much later age than would be theoretically expected. The researchers concluded that American children progressed through spatial stages somewhat slower than Swiss children.

In examining children on geographic and spatial concepts, Jahoda (1964) reported that boys performed significantly better than girls in territorial decentration tasks. However, Stoltman (1971) reported that there were no significant sex differences in his study of territorial concept attainment.

Several reasons have been proposed for the child's progression through these spatial stages. Both Piaget (1928, 1951) and Jahoda (1964) have suggested travel experiences and environmental circumstances as being partially responsible for this process of territorial decentration. Stoltman (1971) also alluded to these influences. However, Piaget (1951) suggested that the child's inability to understand the territorial relationships reflects the child's inability to include classes within each other. The child lacks the concept of class inclusion. The child does not think of the part in relation to the whole. The fault lies in the child's incapacity to logically multiply classes, or the child's inability to understand that there can be an intersecting of classes. Instead of this intersection of classes, the child simply juxtaposes classes. Piaget noted further (Inhelder and Piaget, 1964) that the child thinks about things absolutely and not in relation to each other, thus demonstrating a lack of the understanding of class relations.

Piaget's research has provided a theoretical framework for understanding children's acquisition of geographic concepts and relationships. Subsequent studies have sought to further examine this theoretical framework, and while these studies have generally agreed with Piaget's original results, wide variations in the rate of progression through Piaget's stages have been

noted when examining various samples of children differing as to race, place of residence, and socioeconomic status. In addition, no clear explanation of why children progress through these stages has been offered. While the relationships between general classification and class inclusion abilities and those of geographic classification and inclusion have been alluded to, these relationships have not been specifically examined. Further, no single investigation has attempted to compare the relationships existing between the various methods of examining children's understanding of geographical and territorial concepts and relationships.

Accordingly, this study correlates conceptions of geographical and territorial relationships with the child's competence of classification and class inclusion measures. Further, the various tasks used by previous investigators are analyzed to determine if they were indeed measuring the same kinds of territorial concept acquisition competencies. This study also examines the progress of midwestern American children in spatial stages development proposed by Piaget and compares them with the findings of Jahoda and Stoltman. The relationship between sex, urban-rural residence, and socioeconomic status on children's performance in acquiring territorial conceptions of geography and nationality are also examined.

Methods and Procedures

The subjects for this study were selected from two separate schools in Indiana. The first of these was a rural school in north-eastern Indiana while the second was a suburban school located on the edge of a northeastern Indiana community. Sixty children were randomly selected from each school. These children were stratified according to grade ($n = 10$) and were evenly divided between boys and girls. Because a close correspondence was expected between age and grade level, no attempt was made to select according to age. In addition, data were collected from each child's individual records for purposes of classification on Hollingsheads' two factor index of social position (Hollingshead, 1957). The total sample was thus composed of 120 students stratified by grade, sex, location of school, and socioeconomic status.

Two instruments were utilized for this study. The first was the Geographic Stages Test. This instrument was based upon the work of Piaget and previous investigators for purposes of standardization and comparison. The test was composed of several sections, each designed to elicit specific information from the child. The first subsection, Verbal Geographic Stages, was designed to assess the child's verbal understanding of the various political units in which he lived. The second subsection, Spatial Stages-Circles, was designed to disclose the child's conception of the relationship among the various political units in which he lived. This was done by having the child draw circles

representing those units. The third section, Spatial Stages-Props, was designed to elicit the child's representation of relationships between geographical units by having the child manipulate a series of props made from cardboard. The fourth section, Nationality Stages, was designed to verbally assess the child's conceptions of territorial inclusion relationships and that of multiple classification. The final subsection was designed to verbally assess the child's conception of the reciprocal relationship implicit in the concept of foreigner.

A second instrument, the Logical Thinking Test, was originally devised by Rand and Towler. The purpose of this test was to assess a child's general competence in classification and multiple classification. In addition, two additional subtests were devised which were designed to assess children's performance in single attribute classification competence, and in class inclusion ability. The test was designed to be administered to groups by means of a slide and tape presentation. The measure was thus composed of four separate subtests.

The first subtest, Single Classification, was designed to assess the child's ability to classify objects on the basis of a single similar attribute. The second, a Multiple Classification-Matrix, was a four by four pattern containing up to three attributes of color, form, size, and pattern size. The subject was required to pick an element that would complete the matrix from a series of choices. Both two and three attribute items were used. The third subtest, Multiple Classification-Row and Column, consisted of a set of row and column intersections with the inter-section left blank. Again, the child was requested to choose the element that would complete the pattern. The fourth subtest, Class Inclusion, was designed to assess the child's class inclusion ability by asking him to compare the relative sizes of subordinate to superordinate groups.

For each test, several scores were derived. The Logical Thinking Test yielded a score for each subtest, as well as for the total test. In addition, scores were also computed for single, double, and triple attribute classifications. All scores were simply computed on the basis of the number of items correct for each section. The geographic Stages Test was not designed to yield a total score based upon the number of correct responses, but instead, yielded a classification in one of the spatial stages described by Piaget and/or later investigators. Each of the subtests yielded an assignment to an appropriate stage and an overall stage placement based upon composite classification from scores on the subtests.

Hypothetically expected frequencies based upon the work of Piaget (1951) and Stoltman (1971) were constructed for each subtest and the total test (Table 1). Variations between the theoretically expected frequencies and the observed frequencies based upon the children's actual responses for the Geographic Stages Test were then examined by means of Chi-square analysis.

Results

The hypothesis that there would be no significant differences between observed frequencies of children's scores and a hypothetically expected distribution for total test score and for each of the subtest scores was tested using the chi-square test for goodness of fit (Table 2). The analysis revealed significant differences between observed and expected frequencies for each of the subtests as well as for total test scores, indicating that Piaget's spatial stages were not appropriate for the sample of children.

Further chi-square analyses were also conducted to determine differences between theoretically expected and observed distributions on total test score and all subtest scores for the various subsamples: boys and girls; urban and rural children; and upper and lower socioeconomic status children. Results of these analyses indicate that with few exceptions, significant differences between expected and observed frequencies occur for all groups, and for all subsections of the Geographic Stages Test, giving additional support to the contention that Piaget's spatial stages do not adequately describe the development of these children.

The hypothesis that there would be no significant differences between subsamples for total test scores and all subtest scores on the Geographic Stages Test was tested using separate one way analyses of variance. These separate analyses of variance were computed for each of the independent variables of age, sex, residence, and socioeconomic status. Again, with a few exceptions, the data suggest that no significant differences occur between these various subsamples (Tables 3, 4, 5, 6).

Correlational analyses were computed to determine the relationships between children's scores on the different subtests of the Geographic Stages Test (Table 7). All correlations were significant relationships between the various subscores on the Geographic Stages Test. This was expected since all subtests measure aspects of similar content and relationships.

Correlational analyses were computed to determine the relationships between children's scores on the Geographic Stages Test and the Logical Thinking Test (Tables 8, 9). All correlations were significant. It might be noted that for the single classification subtest, correlations with the subtests and total test score of the Geographic Stages Test were low, while higher correlations were evident between multiple classification abilities and the Geographic Stages Test. The highest correlation might be noted between the class inclusion abilities and the Geographic Stages Test. This was expected since Piaget noted that these abilities were at the heart of spatial stages progression. Thus, results of the analyses indicated that significant relationships existed between children's scores on the Geographic Stages Test and the Logical Thinking Test.

A hypothesis that there were no significant relationships between variables of age, sex, SES, and residence with total score on the Geographic Stages Test was established. A step-wise multiple regression analysis using total score on the Geographic Stages Test as the dependent variable was computed (Table 10). A relationship of .72 ($p < .001$) was observed between age and the dependent variable. All other relationships were not significant. Thus, the independent variable of age explained approximately 50% of the variance in the dependent variable. All other variables explained relatively insignificant amounts of the variance in the dependent variable, with greatest additional variance being explained by socioeconomic status (4%). The hypothesis of no significant relationships between these variables and total geographic stage score was rejected since age alone accounted for half the variance in the dependent variable. Total rejection of the hypothesis should be done with caution however, since the additional independent variables predicted a small amount of the variance for the dependent variable.

Discussion

With minor exceptions, the hypothetical frequencies did not adequately describe the stage performance of this group of American children. Major discrepancies might be noted as a result of the chi-square analyses. Eight and nine year old children were much more evenly divided between the stages than expected. This suggested that Piaget's description of children's progression through a transition stage might not be accurate since results indicated that far fewer children were in this stage than expected. It might be that this result exhibited Piaget's notion of a considerable range of development in a group of similarly aged children. This middle age group could be spread evenly over stages I, II, and III. This possibility has also been suggested by several of the previous investigators (Jahoda, 1964; Stoltzman, 1971).

Another noticeable trend was that older children seemed to progress through the stages at a slightly faster rate than expected. Further, this age group exhibited less differential performance between subtests than did the younger children, who were much more likely to vary in their performance from subtest to subtest. Further, younger children progressed through the stages slightly slower than expected, in opposition to the rate for the older children.

Different rates of progression through the spatial stages were also evident when children's performance on the various subtests was examined. By far the easiest subtest for children appeared to be the Nationality Stages Test. A previous investigator (Jahoda, 1964) also noted this and suggested it was contrary to Piaget's original formulations. Results also indicated that most children seemed to do better on understanding of spatial stages through circle and prop manipulation than they did on expressing the relationships verbally. The authors also noted this

tendency and suggested that the results contradict Piaget's original assertions about spatial stage development. They, however, related to more general Piagetian theory (Inhelder and Piaget, 1964). Many children demonstrated concrete operations before they were able to explain the operations verbally.

By far the most difficult concept in the test for the child to grasp was that of foreignness. Few children were in the transition stage, which suggested that once a child understands the meaning of foreigner (identification), they understand that they are a foreigner in another country. The difficulty with this concept might be that it was not simply an inclusion relationship among concrete political territories, but rather, a highly abstract reciprocal relationship which included both inclusion and multiple classification.

Several possible explanations exist for the differences between children tested in this study and those examined by Piaget. Differences in sampling and criteria used for stage placement might have contributed to these differences, but since differences were noted for almost all subtests and for all subsamples, it was probably true that more than just a sampling error or placement criteria were involved. This was especially evident because of the fact that all possible criteria were involved in stage placement, and none of these criteria resulted in a similar age "fit" to that reported by Piaget. Another possibility was that the statistically generated hypothetical frequencies were not an accurate representation of Piaget's stages, but rather, as Stoltman points out, any attempt to alter frequencies in one cell leads to greater discrepancies in other cells, and thus increases the overall chi-square value.

It might also be possible that Swiss children have wide differences in cultural and educational experiences from American children. However, some doubt may be cast on this assumption since Piaget's stages did not seem to adequately represent Scottish children either. Travel and home experiences might have played a part in these differences, but it was beyond the scope of this present study to examine this relationship.

Results of this research indicated variance from Piaget's special stages, most particularly in the frequencies of children in any given stage at a certain age. However, Piaget's spatial stages cannot be discounted entirely, for Piaget noted that wide individual variations existed for any given age and stage, and this research supported that view. There is still evidence that children progress through their understanding of territorial and spatial relationships in a manner similar to that suggested by Piaget. A major contention seems to be that Piaget's criteria were somewhat unclear and differences between samples of children would have been distinguishable if Piaget offered explicit guidelines and reported precise figures.

Results of the analyses indicated that age seemed to be the major determinant of progression through stages. Both chi-square

analysis and the analysis of variance indicated significant differences according to the independent variable of age, which gave support to Piaget's contention of age-stage relationships. Few significant sex differences were noted, although a trend was apparent. Boys performed better than girls on all subtests and on total test. This was in agreement with previous research by Jahoda and by Terman and Tyler (1954) who reported sex differences on general geographic achievement measures.

The finding of no significant differences between rural and urban children, except for the Nationality Stages subtest, was in contradiction to previous research. Again, however, the trend of urban children to outperform rural children was clearly established. It might be that since county was used to determine rural children's conception of inclusion for the nationality stages test in opposition to city for urban children, that these children scored lower since county was the most difficult of all the territorial units used.

Additional support for the contention that age was the primary determinant of stage progression was given by the results of the regression analysis. The only significant correlation between any of the independent variables and Geographic Stage performance was age, which accounted for half of the total variance in the dependent variable. While this contradicted previous research by Stoltman (1971) it might be postulated that the magnitude of SES differences in this study was much less than that reported by Stoltman, leading to few differences among socioeconomic groups.

Intercorrelations between the subtest and total test scores for the Geographic Stages Test were all highly significant. The data suggested that the subtests measured similar content although perhaps in slightly different ways. This was expected since the first four subtests, which were by far the most highly correlated, attempted to follow one or more of Piaget's procedures for determining spatial stages progress. The lowest intercorrelations for any of the subtests were between the Foreignness Stages subtest and other subtests. Thus, the test measured something moderately different from the other subtests. Overall, it appeared that the test exhibited a rather high degree of content similarity, but that the subtests were measuring somewhat different functions of that similar content.

Correlations between the two tests indicated that the single classification measures had a low relationship to geographic spatial stage progress. This was expected since the classification abilities required for the Geographic Stages Test were not generally considered single classification abilities. More precisely, these abilities could be classed as multiple classification abilities. Support for this assertion was provided by the intercorrelations for the two multiple classification subtests, as well as the higher correlations of the attribute scales with the Geographic Stage Test scores. This provided evidence for a relationship between children who were able to classify according to multiple

attributes and children who were able to classify geographic units and understand the relationships between them.

However, according to Piaget, the primary ability necessary for understanding spatial relations was class inclusion, and this theoretical assertion was supported by the high correlations between the Class Inclusion Subtest and the various subtests of the Geographic Stages Test. Thus, there was a moderate relationship between the general ability of class inclusion and that of spatial and territorial inclusion. It was noted that children were required to demonstrate concrete inclusion concepts on the Test of Logical Thinking while highly abstract inclusion relationships were called for on the Geographic Stages Test. Had abstract concepts been examined in the Logical Thinking Test it is entirely possible that these correlations would have been even higher.

Further support for the high degree of association between the two tests may be noted by the relationship between the total score on both tests. The relationship might be described as moderately high ($r = .61$) which suggested a strong relationship between general classification-class inclusion abilities and those of territorial and spatial inclusion relationships. Since the Logical Thinking Test was based upon general class inclusion abilities, it was logical to assume that these abilities influenced the special class inclusion abilities required by the Geographic Stages Test, rather than the reverse.

Implications

Several implications for curriculum and educational practice may be drawn from the results of this research. If students progress through age-stage relationships in their knowledge of geographical concepts, it is feasible to design curricular sequences based upon these age-stage developments. Implicit in this assumption is the necessity for ascertaining the developmental level of the child to determine in which stage level the child belongs. It seems improper to try and teach something which the child is cognitively unable to comprehend.

Teachers should use activities and techniques designed to take advantage of the child's particular developmental level. Children should be given information about geographical knowledge and concepts in a form that is most meaningful to them. Thus, if the sequence of geographic knowledge proceeds from the child's immediate vicinity outward, curricular sequences and instructional materials and methods should be designed to take advantage of this particular learning pattern.

Children should also be given a greater opportunity to demonstrate complete understanding of concepts, especially since this research suggests that children are often not able to buttress verbal performance with spatial understanding, or vice-versa. Further, as Jahoda has noted, children often give "parrot-like" responses to questions without being asked to demonstrate true

conceptual understanding. The children should be given many opportunities to understand and to assimilate this information into their cognitive structures. Further, a wider variety of experiences and materials would most likely be beneficial in obtaining this result.

Results of this study also indicate that children would probably benefit from guidance by the teacher in trying to understand classification and class inclusion tasks, since there is a strong relationship between the various abilities required for complete understanding of geographical and territorial concepts and relationships, and those of general classification and class inclusion. Work with sets and subsets would perhaps be beneficial to young children, as well as classification and class inclusion exercises.

Diagnostic implications are also apparent from this study since results indicate differing performance for various subgroups. The teacher should recognize these differences and make allowances for them in the course of instruction. In general, these results indicate that the individual teacher should become more aware of student's capacities and should learn to correctly observe children to comprehend the child's level of development. Systematic observation of children's answers and conceptual framework is always beneficial, but it is double so in the areas of geographic learning and social studies, since these subject matter areas rely heavily upon understanding of concepts and relationships that are not always easy to grasp. The concepts included are not as susceptible to concrete manipulation as are concepts in science and mathematics.

TABLE 1
EXPECTED FREQUENCY DISTRIBUTION FOR PIAGET'S SPATIAL STAGES*

Age	I	Stage II	III
6-7	70%	20%	10%
8-9	20%	60%	20%
10-12	10%	20%	70%

* From Stoltman, 1971.

TABLE 2
EXPECTED VERSUS OBSERVED FREQUENCIES FOR TOTAL SAMPLE
ON THE GEOGRAPHIC STAGES TEST AND SUBTESTS

	Age	I	Stage II	III
Expected	6-7	23.1	6.6	3.3
	8-9	8.6	25.8	8.6
	10-12	4.4	8.8	30.8
Observed Total Stage	6-7	22	8	3
	8-9	12	15	16
	10-12	0	4	40
$\chi^2 = 22.38, p < .01$				
Observed Verbal Stage	6-7	29	4	0
	8-9	22	9	12
	10-12	1	5	38
$\chi^2 = 44.95, p < .01$				
Observed Spatial Stages-Circles	6-7	23	5	5
	8-9	16	12	14
	10-12	1	3	40
$\chi^2 = 28.97, p < .01$				
Observed Spatial Stages-Props	6-7	18	9	6
	8-9	11	12	20
	10-12	1	3	-
$\chi^2 = 36.57, p < .01$				
Observed Nationality Stages	6-7	14	9	10
	8-9	8	12	23
	10-12	0	2	42
$\chi^2 = 63.32, p < .01$				
Observed Foreignness Stages	6-7	31	0	2
	8-9	29	3	11
	10-12	6	2	36
$\chi^2 = 85.74, p < .01$				

TABLE 3
ONE WAY ANALYSIS OF VARIANCE FOR DIFFERENCES BETWEEN
AGE GROUPS ON SCORES OF THE GEOGRAPHIC STAGES TEST

Variable	Source	DF	MS	F
Verbal Stage	Age	2	45.20	92.71***
	Error	117	.49	
Spatial Stage- Circles	Age	2	20.65	43.46***
	Error	117	.48	
Spatial Stage- Props	Age	2	15.40	32.64***
	Error	117	.47	
Nationality Stage	Age	2	11.44	26.14***
	Error	117	.44	
Foreignness Stage	Age	2	25.29	48.09***
	Error	117	.53	
Total Stage	Age	2	21.75	51.14***
	Error	117	.39	

*** $p < .001$

TABLE 4
ONE WAY ANALYSES OF VARIANCE FOR DIFFERENCES BETWEEN
BOYS AND GIRLS ON SCORES OF THE GEOGRAPHIC STAGES TEST

Variable	Source	DF	MS	F
Verbal Stage	Sex	1	5.21	4.41*
	Error	118	1.18	
Spatial Stage- Circles	Sex	1	2.70	3.39
	Error	118	.80	
Spatial Stage- Props	Sex	1	1.63	2.31
	Error	118	.71	
Nationality Stage	Sex	1	1.88	3.09
	Error	118	.61	
Foreignness Stage	Sex	1	.21	1
	Error	118	.95	
Total Stage	Sex	1	3.01	4.19*
	Error	118	.72	

* $p < .05$

TABLE 5

ONE WAY ANALYSIS OF VARIANCE FOR DIFFERENCES BETWEEN RURAL AND URBAN CHILDREN ON SCORES OF THE GEOGRAPHIC STAGES TEST

Variable	Source	DF	MS	F
Verbal Stage	Residence	1	.40	1
	Error	118	1.22	
Spatial Stage-Circles	Residence	1	2.70	3.39
	Error	118	.80	
Spatial Stage-Props	Residence	1	1.63	2.31
	Error	118	.71	
Nationality Stage	Residence	1	2.41	3.99*
	Error	118	.60	
Foreignness Stage	Residence	1	2.41	2.58
	Error	118	.93	
Total Stage	Residence	1	1.01	1.37
	Error	118	.74	

* $p < .05$

TABLE 6

ONE WAY ANALYSIS OF VARIANCE FOR DIFFERENCES BETWEEN UPPER AND LOWER SOCIOECONOMIC GROUPS ON SCORES OF THE GEOGRAPHIC STAGES TEST

Variable	Source	DF	MS	F
Verbal Stage	SES	1	1.36	1.12
	Error	118	1.21	
Spatial Stage-Circles	SES	1	3.37	4.26*
	Error	118	.79	
Spatial Stage-Props	SES	1	1.29	1.82
	Error	118	.71	
Nationality Stage	SES	1	2.08	3.42
	Error	118	.61	
Foreignness Stage	SES	1	4.33	4.73*
	Error	118	.91	
Total Stage	SES	1	1.32	1.79
	Error	118	.73	

* $p < .05$

TABLE 7
CORRELATIONS BETWEEN SUBTESTS AND TOTAL TEST ON THE GEOGRAPHIC STAGES TEST

	Spatial Stage-Circles	Spatial Stage-Props	Nationality Stage	Foreignness Stage	Total Stage
1. Verbal Geographic Stage	.81***	.78***	.76***	.75***	.88***
2. Spatial Stage-Circles		.89***	.81***	.68***	.92***
3. Spatial Stage-Props			.83***	.63***	.92***
4. Nationality Stage				.60***	.86***
5. Foreignness Stage					.68***

*** p < .001

TABLE 8
CORRELATIONS BETWEEN GEOGRAPHIC STAGES TEST AND LOGICAL THINKING TEST

	Single	Matrix	Logical Thinking Test		
			Row & Column	Inclusion	Total
Verbal Stage	.27***	.54***	.44***	.65***	.66***
Spatial Stage- Circles	.36***	.53**	.43***	.56***	.64***
76 Spatial Stage- Props	.31***	.48***	.41***	.50***	.58***
Nationality Stage	.26**	.48***	.35***	.51***	.55***
Foreignness Stage	.20*	.45***	.47***	.60***	.60***
Total Stage	.28***	.47***	.43***	.57***	.61***

* p < .05
 ** p < .01
 *** p < .001

TABLE 9

CORRELATIONS BETWEEN GEOGRAPHIC STAGES TEST
AND ATTRIBUTE SUBTESTS OF LOGICAL THINKING TEST

	Logical Thinking Test		
	Single	Double	Triple
Verbal Stage	.27***	.47***	.53***
Spatial Stage- Circles	.36***	.46***	.53***
Spatial Stage- Props	.31***	.46***	.45***
Nationality Stage	.26**	.45***	.40***
Foreignness Stage	.20*	.44***	.50***
Total Stage	.28***	.45***	.48***

* $p < .05$ ** $p < .01$ *** $p < .001$

TABLE 10

STEPWISE MULTIPLE REGRESSION ANALYSIS. PREDICTION OF GEOGRAPHIC
STAGE SCORE USING INDEPENDENT VARIABLES OF AGE, SEX,
RESIDENCE, AND SOCIOECONOMIC STATUS

Variable	Simple r	Multiple r	r^2	r^2 change
Age	.72	.72	.52	-
SES	-.11	.75	.56	.04
Sex	.19	.75	.57	.01
Residence ¹	.11	-	-	-

¹ Residence was not entered in the final equation because of insufficient F level.

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THE DEVELOPMENT OF NATIONALITY AND SPATIAL
RELATIONSHIP CONCEPTS IN CHILDREN: CANADA

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ABSTRACT

This study reports the development of a sample of Canadian children on geographic, nationality, country, and foreignness stages. Stages observed were compared to the empirical studies by Jean Piaget in Switzerland. Wide ranges of age were reported as children in the sample attained the various stages. This was in general agreement with reports from Piaget and other researchers regarding the sequence of stage development and relationships with age. Implications and recommendations for curriculum and teacher training are discussed.

LE DÉVELOPPEMENT DU CONCEPT DE NATIONALITÉ
ET LES CONCEPTS DE RAPPORTS DANS
L'ESPACE CHEZ LES ENFANTS DU CANADA:

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RÉSUMÉ

Cette étude est un compte-rendu du développement d'un groupe d'enfants Canadiens du point de vue de leur prise de conscience au sujet de la géographie, la nationalité, le pays, et le concept de l'étranger. Les étapes considérées sont comparées aux études empiriques de Jean Piaget en Suisse. Une grande variation des âges des enfants étudiés se révèle au fur et à mesure que les enfants du groupe atteignent les différentes étapes prévues. Ceci est en accord avec les compte-rendus de Piaget et d'autres enquêteurs en ce qui concerne le déroulement de ces étapes et leurs rapports avec l'âge des enfants. L'article discute les implications et les recommandations qui en découlent au sujet des programmes et de la pédagogie appliquée.

РАЗВИТИЕ В ДЕТАХ ЧУВСТВА НАЦИОНАЛЬНОСТИ И ПОНЯТИЯ
ПРОСТРАНСТВЕННЫХ ОТНОШЕНИЙ: КАНАДА

И. Товлер и Д. Прайс
Канала

ВЫДЕРЖКА

Это исследование на группе канадийских детей показывает развитие географических, национальных государственных этапов также показывает развитие стадии отчужденности. Замеченные этапы развития сравниваются с эмпирическими наблюдениями Джина Пиаже в Швейцарии. Обнаружены большие колебания в возрасте детей достигнувших разных этапов. Вообще это согласуется с результатами Пиаже и других исследователей последовательности этапного развития и взаимоотношений в соответствии с возрастом. Обсуждаются рекомендации приучающие этих данных при составлении учебного плана и при вышколивании учителей.

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The Development of Nationality and Spatial Relationship Concepts in Children: Canada

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The human development theories of Jean Piaget have opened up wide areas of study in cognition for psychologists and educators alike. This paper reports research regarding children's knowledge of geography and geographical relationships and adds to several earlier studies by the noted Swiss psychologist. In these studies, Piaget (1928, 1951) proposed a spatial stages theory by which the child was able to comprehend the various geographical units in which he lives and to gradually integrate these units into a logically correct and consistent hierarchy. The present study represents a replication and extension of the work of Piaget in examining a child's knowledge of the concepts of spatial and logical relationships among geographical units. This study also measures the child's comprehension of the term "foreigner" as well as his knowledge of other countries.

Examination procedures to assess concept development were organized into four areas.

I. Geographic Stages. The child was asked to verbally identify his city and province, and to correctly place them within the appropriate city, province, and nation hierarchy.

II. Nationality Stages. The child was asked to demonstrate his comprehension of inclusion relationships by asking him if he lived in both his city and his province, and then how he could live in two places at one time.

III. Country Stages. This section asked the child to name as many different countries as he could, and to indicate which country he liked best, which country he liked least, and his reasons. (Included with the countries were also continents.)

IV. Foreignness Stages. The child was asked to define the word foreigner, and then asked if he would be a foreigner if he went to a different country, Spain, and also if he went to Manitoba, Canada.

Each of the sections were scored so that the child was placed in the appropriate level of stage development for each part of the test. In addition, counts were taken of the number of foreign countries a child could name, as well as his reasons for liking or disliking a particular country.

Description of Sample

The instrument was individually administered to 45 elementary school students randomly selected from classrooms in Elmira, Ontario. These children ranged in age from 6 - 12 years of age. For discussion purposes and tabular presentation the sample is organized by general age levels--6 years, 9 years, and 11 years. Approximately an equal number of boys and girls were included at each level.

Results and Discussion

Geographic Stages

If the student had no conception of his city as an unit, he was classified as G1. If he could identify the city as a unit, but not as part of a province or country, he was classified G2. If able to properly place city and province in correct relationship, but not that of province and nation, he was classified as G3. If the student correctly placed all three, city, province, and nation, in the proper relationship he was classified as G4. The pattern of responses from the sample suggested a definite age-stage relationship (Table 1). Further credence for the age-stage theory was indicated by the fact that older children had reached the G4 stage.

Nationality Stage

The child was first asked if he lived in Elmira; he was then asked if he lived in Ontario. If the child responded yes to both of these questions, he was then asked how he could live in both places at the same time. If the child answered questions one or two incorrectly, he was classified as N1. If the child answered one and two correctly, but regressed on question three, he was classified as N2. If the child answered all three questions correctly he was classified as N3.

The data suggested that the students distinctly followed age-stage relationships on this task (Table 2). A noticeable difference between this task and the preceding one was that the children seemed to move more slowly through the stages, indicating that perhaps this concept of relationship was more difficult to grasp. The results also indicated that there were very few children in stage N2, a transition stage. The children were either certain that they lived in only Elmira, or they knew that they lived in both Elmira and Ontario. In this stage there was also a wide range in the acquisition of the concept.

Foreignness Stage

The child was requested to define foreigner. If unable to do so, he was classified as F1. If the child correctly defined the concept of foreigner, but answered that he would not be a foreigner in Spain, he was classified as F2. If a child answered

both questions correctly, he was classified as F3. The results again suggested definite age-stage trends (Table 3). However, the difficulty of this task as compared to the geographic and nationality stages was obvious. None of the youngest children could even define foreigner nor could a number of the older children. There were almost no children in stage F2, which should presumably be a transition stage. Here the results indicated a wide discrepancy with Piaget's stage theory. The number of children who could not define foreigner suggested that this was a particularly difficult concept to define. Once a child was able to define foreigner he understood the concept which further supported the difficulty of this stage and explained the absence of a transition stage. There was also a major increase in the proportion of children who correctly reached stage F3.

A definition of foreigner was provided for those children who on the previous section were unable to give a proper definition. This was done to help the children recall what foreigner meant. Providing the definition gave all the children an equal opportunity to answer whether or not they would be a foreigner if they went to Manitoba. There was a slight increase in the number of children who understood that Manitoba was part of Canada and they themselves were Canadians. Despite the definition being given, many of the children were unable to grasp the meaning of the concept and felt that they were foreigners within their own country. This was especially true with the younger children (Table 4).

Country Stages

In addition to the preceding three sections, children were asked to name as many foreign countries as they could. The results of this question made possible the construction of Country Stages (Table 5). If a child was unable to name any countries, he was designated as C1. If a child named some countries, but intermixed them with other geographical entities, he was classified as C2. If a child named only countries and continents, he was classed as C3.

Almost half of the younger children could not name any or only one country. Thus, many of the children classed as C3 may have named only one country (Table 6). As age increased, so did the number of countries and continents named.

Conclusions and Implications

Some concluding general observations may be made from this study. The age-stage relationships described by Piaget seemed to be generally applicable to these children. While wide ranges of stages may be found in all age groups, it did not refute the idea of stage development. Piaget noted wide age ranges in attaining each particular stage. It also appeared that there were greater discrepancies for younger children across the various sections of the test. This may be explained by what Piaget

called horizontal decolage. Children move into substages of comprehension for similar kinds of tasks at differing age levels. Also, the data suggested that different children progressed at varying rates because of differences in social environment and learning ability. These may partially account for the ranges within the different age groups.

The data also suggested that Canadian children were, for all their relatively rapid advances, in many areas quite ignorant of many geographical entities outside the boundaries of their country. This was most notable in their performance on naming countries. It may have been a function of their experiences rather than any lack of ability. It is perhaps indicative of deficient school experiences.

A number of educational inferences might be drawn from this study. For example, one might be the design of curricula for teaching geography. If students progressed through definite age-stage relationship in their knowledge of geographical concepts, it would be feasible to design curricular sequences that were based upon these age-stage developments. This could include ascertaining the level of development for children, and basing curricular decisions on this information. It would be educationally unsound to teach concepts that the child is not able to comprehend. It would also be necessary to recognize that there is probably a ceiling for any individual child, and while mere verbal repetition may be attained by the child, understanding will not necessarily occur. One must also guard against the misconception that children can't advance with a systematic effort by the teacher. They advance to a point before they reach the limit of comprehension in terms of their existing capabilities and cognitive structures.

Teachers should use activities and techniques designed to take advantage of the child's particular learning abilities at each stage. The results of this study indicated that more work with concrete and spatial representation of geographic relationships should be carried out. This could include giving the child opportunities to work with concrete situations. For example, the child could manipulate concrete props and visual aids.

Work should also be done by the teacher to guide the child in his understanding of relationships, specifically those of inclusion, multiple classification, and reciprocity. This could be done in various ways, but the teacher should strive for genuine understanding, not mere verbal recital. While the child should be given more opportunities to verbalize, he should also be given more opportunities to demonstrate transfer of these abilities across various tasks and dimensions, not those of geography exclusively.

Children should also be given information about geographical knowledge and concepts in a form that is most meaningful to them at their particular age. Since younger children rely heavily upon

personal experiences, geography for them could take the form of "people" geography, with examples of first-hand experiences and lots of concrete visual examples. This could give the child a basis for relating to what he hears and sees. Older children should be given a wider variety of geography, especially social and political geography, for it is only as they get older that they have the cognitive structures which will enable them to comprehend this material. Further, children at all ages should be given the opportunity to demonstrate complete understanding. A child must have an opportunity to understand so these concepts can become part of his cognitive structure. A possible curricular sequence for young children could begin with the home and neighborhood and then move outward to include wider areas of the world. This study demonstrated the need for an orderly and carefully planned sequence.

It appears that younger children have a tendency to misinterpret information, while older children also misinterpret information in a different manner. This results from an incomplete understanding or incorrectly learned information. If valid, the schools should ensure that children get a chance to judge for themselves the veracity of information. This gives them the opportunity to integrate information into their framework. Teachers must present material and information as objectively as possible to minimize the possibility that the child learns misinformation. The suggestion is that the teacher inform rather than indoctrinate.

Results of this study also suggested that children be given greater exposure to reality, for this is what they comprehend best. This would necessitate studying countries in the news, or studying countries for which the child had a personal interest. A corollary to this is that the study of reality gives the teacher greater opportunity to correct misconceptions and misinformation.

On a purely personal level, these results suggested that the individual teacher should become more aware of the student's capacities, and learn to correctly observe children in order to better comprehend their level of development. Systematic observation of children's conceptual framework is always beneficial, but it is doubly so in the areas of geographic learning. It provides the opportunity to correct what are obvious faults in the teaching of geographical knowledge.

TABLE 1
GEOGRAPHIC STAGES

Stage	Age	6 Years	9 Years	11 Years
G1		2		
G2		13	3	
G3			1	
G4			11	15

TABLE 2
NATIONALITY STAGES

Stage	Age	6 Years	9 Years	11 Years
N1		11	1	
N2		2	4	1
N3		2	10	14

TABLE 3
FOREIGNNESS STAGES (a)

Stage	Age	6 Years	9 Years	11 Years
F1		15	13	2
F2			1	
F3			1	13

TABLE 4
FOREIGNNESS STAGES (b)

Stage	Age	6 Years	9 Years	11 Years
M1		13	7	
M2				
M3		2	6	2
M4			2	13

TABLE 5
COUNTRY STAGES

Stage	Age	6 Years	9 Years	11 Years
C1		3	1	
C2		7	7	1
C3		5	7	14

TABLE 6
NUMBER OF COUNTRIES NAMED

Countries	6 Years	9 Years	11 Years
0-1	6	2	
2-5	9	5	
6-10		7	4
11-15		1	2
16-20			1
20+			8

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RESEARCHING INSTRUCTIONAL STYLE AND CLASSROOM ENVIRONMENTS:
A SURVEY OF TECHNIQUES

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ABSTRACT

Five standardized, systematic classroom observation techniques are described and referenced. The techniques permitted the measurement of different aspects of teacher interaction and classroom style. Each included paper-pencil recording instruments which were completed by either an external observer or by the students (SPOTS). All were relatively simple to use and interpret. An annotated bibliography describing additional instruments was included.

RECHERCHES SUR LES MODES D'ENSEIGNEMENT ET
LES MILIEUX SCOLAIRES: UN SOMMAIRE DE TECHNIQUES:

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RÉSUMÉ

Dans cet article, cinq techniques d'observation systématique d'une classe sont décrites et accompagnées de références à l'appui. Ces techniques permettent d'évaluer différents aspects de l'action réciproque entre élèves et enseignant et du mode d'enseignement même.

Chacune de ces techniques utilise une instrumentation (avec papier-crayon) qui enregistre les résultats et qui est complétée soit par un observateur venu de l'extérieur soit par les élèves-mêmes (SPOTS). Toutes ces techniques sont relativement simples à employer et à interpréter. Une bibliographie annotée et décrivant l'instrumentation nécessaire est ajoutée à l'article.

ИССЛЕДОВАНИЕ МЕТОДА ПРЕПОДАВАНИЯ И ОКРУЖЕНИЯ В КЛАССЕ:
ОБЗЕРЕНИЕ ТЕХНИЧЕСКИХ ПРИЕМОВ.

Штайнбринк
Соединённые Штаты

ВЫДЕРЖКА

Пять стандартизованных систематических наблюдений технических приемов в классе описаны и текст снабжён ссылками. Эти приёмы допускают измерение различных аспектов взаимодействия учителя в классе и его поведения в классной обстановке. Каждый из пяти описанных приемов включает бумагу и карандаш, как инструменты записи. Наблюдения регистрируются или посторонним лицом или учениками "SPOTS" (Восприятие студентами стиля преподавания). Все они относительно просты и легко поддаются интерпретации. Снабжённая примечаниями библиография, в которой описываются добавочные инструменты, включена в текст.

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Researching Instructional Styles and Classroom Environments: A Survey of Techniques

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In this review an attempt was made to identify and describe available instruments for the observation of teaching style and the classroom environment. The objective of this paper was to describe instruments which could be used in the collection of descriptive data for making valid inferences about the general classroom environment. The instruments were chosen to provide teachers with the descriptive feedback necessary for constructive modification of their teaching. Descriptive feedback of teacher classroom behaviors revealed patterns that curricular specialists, teacher educators, and school administrators could employ in improving the conditions of the learning environment.

Traditionally teachers have relied upon personal resources for receiving feedback about teaching style and the classroom environment. Teaching, like golf and tennis, tends to defy self-analysis unless one is aided by external observers who can provide objective feedback in a useful form (Stanford and Roark, 1974). Only the most foolish or naive could deny the need for unbiased observational procedures that describe teaching style and classroom environments. A practical application of data derived from the procedures might be expressed as a theory of congruence in education. This theory is believed applicable within the following paradigm.

A match or best fit between teacher perception and student perception of teacher style and the classroom environment results in high performance, satisfaction and minimal classroom stress, whereas a lack of fit between perceptions tends to result in decreased performance, dissatisfaction and classroom stress.

In simple terms, a congruency between teacher, individual learner, and the classroom group results in a more educationally effective classroom environment.

Theoretical Rationale

Major advances in the design of objective measurements describing what transpires between students, teachers and groups in the educational environment have occurred in this century. During the past two decades, educational research in the United States has included the study of specific teacher behaviors and certain aspects of the classroom environment and achievement. Whereas past researchers had used descriptions of environmental dimensions with little meaning for the teacher, such as open, lively, or authoritarian, the more

recent objective systems of teacher-learner interactions have relied upon more sophisticated observational systems and the analysis of large quantities of data. It is probable that teacher behavior and classroom environment research will become an increasingly important component of educational research. It has policy implications ranging from teacher accountability in the classroom to pre-service teacher training programs. A basic assumption was that the educational environment and interpersonal interaction are far more important than usually recognized.

Several contemporary research efforts have underscored the importance of sound interpersonal relationships between students and the teacher. One method for improving educational environments was to improve the relationships that occur between people and within groups (Stanford and Roark, 1974). Walberg (1969) found significant relationships between classroom environment and learning. This widely referenced study employed a sophisticated data analysis based on data gathered from 57 high school physics teachers and 3,700 students. The scale of the study and research design enhanced the application of research findings to everyday classroom settings.

Two additional reports on the quality of teacher-student interaction revealed significant findings. Mason and Blumberg (1965) found that learners' perceptions of the quality of teacher-student relationships were better in classrooms where students had high cognitive achievement. Soar (1968) reported that the amount of teacher indirectness necessary for optimal student growth varies. More importantly, student criticism by the teacher was inversely related to teacher effectiveness and the cognitive development of students.

Classroom Observational Instruments

Educational researchers commonly have classified instruments for the observation of teacher classroom behavior into low-inference category systems and high-inference rating systems (Rosenshine, 1970). An additional distinction between dimensions and the specific behaviors from which such dimensions are inferred was made by Rosenshine and Furst (1971). They commented:

Category systems are classified as low inference measures because the items focus upon specific, denotable relatively objective behaviors (e.g., asks evaluative question), and because such events are recorded as frequency counts. Rating systems are classified as high inference measures because the items on rating instruments (e.g., clarity, warmth, task-orientation, class cohesiveness) require that an observer infer constructs from a series of events (p. 42).

High-inference measures, such as the dimensional ratings described above, must eventually be specified in behavioral, low-inference, terms to be useful in teacher training. A teacher trainee has considerable difficulty becoming more spontaneous without some specific idea of the behavior associated with that spontaneity (Hunt and Sullivan, 1974). Therefore, dimensional, high-inference, ratings are more useful for theoretical purposes than low-inference measures. To the contrary, low inference ratings have a more descriptive basis for educational environment analysis. One advantage of the high inference measures was the way in which they can be analyzed and factored into smaller components for descriptive feedback. While some low inference measures could be used inversely to identify dimensions, their usefulness usually ended with the categorization of frequency counts. Both of these applications are useful in educational research. However, in this review no distinction was made between low-inference or high-inference measures or between category systems and rating systems.

The Structure of this Review

Instead of surveying the entire literature on teacher classroom behavior, the writer has selected significant teacher and classroom observation procedures from educational literature since 1960. These procedures were judged significant because they are standardized, systematic classroom observation techniques that are commonly cited.

From the numerous teacher and classroom observational scales and systems available (Simon and Boyers, 1967), five have been selected for description in this paper. They were selected as representative methods for data collection. Many of the questions teachers and researchers asked concerning teacher and classroom style and classroom environments could be answered in whole or part through the use of these instruments. Although they all measured different aspects of classroom behavior, each had particular strengths and weaknesses. Each system is described, but not evaluated, so the reader can consider employing the instrument directly or, at least, pursue the cited documents for additional information about each.

The Flanders System of Interaction Analysis (FSIA)

Developed by Ned A. Flanders, the Flanders System of Interaction Analysis (FSIA) is an observation instrument designed to examine teacher-student interaction in the classroom. Ramey (1974, 263-274) described the FSIA succinctly and the following section borrows heavily from that description.

FSIA provides a description of the student-centered nature of a teacher's verbal behavior. It determines whether or not the students' freedom is restricted or expanded by teacher verbal behavior. It is the best known and most widely used of the

verbal observation instruments, and is appropriate for all grade levels and subject matter areas. It provides teachers with objective feedback on their performance, with trained observers coding the teacher's and students' behaviors using a pre-established coding system while instruction continues in the classroom.

The major purpose of the system is to analyze verbal influences within two categories, direct and indirect, according to the degree to which the teacher restricts or expands the students' freedom to act. The ten classifications of verbal behavior identified by Flanders are charted as follows.

Teacher Indirect:

- 1) Teacher accepts student's feelings
- 2) Teacher praises or encourages student
- 3) Teacher accepts or uses ideas of students
- 4) Teacher asks students questions

Teacher Direct:

- 5) Teacher lectures
- 6) Teacher gives directions
- 7) Teacher criticizes or justifies his authority

Student:

- 8) Student responds to teacher's question
- 9) Student initiates a response

Miscellaneous:

- 10) Silence or confusion

The FSIA tells what the teacher and students do in terms of both frequency and sequence. It tells the teacher what preceded and followed every verbal behavior, as well as how much time was spent lecturing, criticizing, accepting feelings, praising, using students' ideas, giving directions and asking questions.

A trained observer is required to write down a number corresponding to one of the ten categories every three seconds, or more often if a change in speaker or behavior occurs. Only verbal behavior is coded in this system. The categories are mutually exclusive, i.e., a single verbal behavior is classified in only one category. The intentions of the individual acts are ignored; only the actual act itself is recorded.

Observations are usually taken for at least a twenty-minute period of instruction. Observers may include marginal notes on the kinds of things occurring in the classroom and they always record changes which occur in the makeup of the class or in the

subject under consideration. Numbers are recorded in vertical columns on a sheet of paper, beginning and ending each recording session with the category 10.

A matrix is computed from the numbers following the observation which brings the coded numbers into a meaningful form (Figure 1). A matrix is made up of ten rows and ten columns corresponding to the ten major interaction analysis categories. Of the ten categories in the matrix, seven are assigned to teacher talk and two to student talk. The 10th category covers pauses, short periods of silence, and talk that is confusing or noisy (Flanders, 1965, 15). The matrix is computed by recording pairs of numbers in the matrix, thus permitting an analysis of the sequences of classroom activity.

The teacher's I/D ratio, the ratio of indirect or encouraging behavior to direct or restricting behavior, is computed by dividing the total of categories in Area A by the total of categories in Area B. The teacher's revised I/D ratio, which is nearly content free and is a good indication of classroom environment, may be computed by dividing the total categories 1, 2 and 3 by the total of categories 6 and 7. The percentage of teacher talk is computed by dividing the totals of Areas A, B, C and D. The percentage of student talk is found by dividing the totals Area C by totals of Areas A, B, C and D.

Area E of the matrix reflects observations that the teacher accepted student feelings, used praise or used student ideas for a period of longer than three seconds, and is therefore, called the area of extended indirect (encouraging) influence. Within Area E, categories 2 and 3 have been found through usage to be a catalyst for good social-emotional relationships in the classroom and to be associated with significantly higher student attitude scores (Flanders, 1959, 36).

Area F, the area of extended direct, i.e., restricting, influence, is a combination of category 6, giving directions, and category 7, giving criticism or self-justification. This area reflects teacher problems with discipline, and the criticism may indicate that students are not satisfactorily complying with teacher expectations in the classroom.

The FSIA has been widely used in both teacher training and inservice training. Flanders, using it in an inservice training program with teachers, found it useful in developing flexibility within the teachers' styles by allowing them to vary their direct and indirect influence and to adjust their behavior according to plans or according to a particular situation (Flanders, 1963). The teachers involved in the inservice programs developed concepts as tools for analyzing their classroom behavior. It helped them to describe classroom situations and to become proficient in assessing their own spontaneous behaviors. The teachers were observed to become more independent and self-directed by choosing behaviors which fit their plans (Flanders, 1963, 254).

Figure 1
Matric Analysis

Classification		Category	1	2	3	4	5	6	7	8	9	10	Total
Teacher Talk	Indirect Influence	1. Accepts Feelings	Area F. Extended Indirect Influence										
		2. Praise											
		3. Accepts or Uses Student Ideas											
		4. Asks Questions	Content Cross							Area I			
	5. Lectures												
	Direct Influence	6. Gives Directions						Area F. Extended Direct Influence					
		7. Criticism											
Student Talk	8. Student Response	Area G					Area II		Area J				
	9. Student Initiation												
10. Silence													
Total			Area A Indirect Teacher Talk			Area B Direct Teacher Talk			Area C Student Talk			Area D	

From Flanders, N. Intent, action, and feedback: a preparation for teaching. Journal of Teacher Education, 1963, 14, 251-60.

The FSIA can be used by individual or groups of teachers to compare class periods, to compare teaching experiences, to focus on differing objectives, to assess alternative educational models and to compare teaching styles. Specific instructions for the use of the FSIA can be found in N. A. Flanders, *Analyzing Classroom Interactions*, (New York: Addison-Wesley, 1970); E. Amidon and N. A. Flanders, *The Role of the Teacher in the Classroom*, (Amidon and Associates, 1963); or Miles C. Olson, *Learning Interaction Analysis: A Programmed Approach*, (Educational Consulting Associates, 1970).

The Verbal Interaction Category System (VICS)

The Verbal Interaction Category System (VICS) is based upon the Flanders System of Interaction Analysis. It contains five major categories for analyzing classroom verbal behavior. The five categories are: teacher-initiated talk, teacher response, pupil response, pupil initiated talk, and other. The following descriptive categories of the VICS are taken directly from Amidon and Hunter (1966, p. 211).

Teacher-Initiated Talk:

- 1) Gives Information or Opinion: presents content or own ideas, explains, orients, asks rhetorical questions. May be short statements or extended lecture.
- 2) Gives Direction: tells pupil to take some specific action, gives orders or commands.
- 3) Asks Narrow Question: asks drill questions, questions requiring one or two word replies or yes-or-no answers, questions to which the specific nature of the response can be predicted.
- 4) Asks Broad Question: asks relatively open-ended questions which call for unpredictable responses, questions which are thought-provoking and apt to elicit a longer response than 3.

Teacher Response:

- 5) Accepts
- 5a) Ideas; reflects, clarifies, encourages or praises ideas of pupils. Summarizes or comments without rejection.
- 5b) Behavior; responds in ways which commend or encourage pupil behavior.
- 5c) Feelings; responds in ways which reflect or encourage expression of pupil feeling.
- 6) Rejects
- 6a) Ideas; criticizes, ignores or discourages pupil ideas.
- 6b) Behavior; discourages or criticizes pupil behavior. Designed to stop undesirable behavior. May be stated in question form, but differentiated

from category 3 or 4, and from category 2. Gives direction, by tone of voice and resultant effect on pupils.

- 6c) Feelings; ignores, discourages, or rejects pupil expression of feeling.

Pupil Response:

- 7) Responds to Teacher
- 7a) Predictably; relatively short replies, usually, which follow category 3. May also follow category 2, e.g., "David, you may read next."
- 7b) Unpredictably; replies which usually follow category 4.
- 8) Responds to Another Pupil; replies occurring in conversation between pupils.

Pupil-Initiated Talk:

- 9) Initiates Talk to Teacher; statements which pupils direct to teacher without solicitation from teacher.
- 10) Initiates Talk to Another Pupil; statements which pupils direct to another pupil which are not solicited.

Other:

- 11) Silence; pauses or short periods of silence during a time of classroom conversation.
- 2) Confusion; considerable noise which disrupts planned activities. This category may accompany other categories or may totally preclude the use of other categories.

Similar to the Flanders System, the VICS requires that users must memorize the categories. Once these are learned, tapes of various teaching situations can be used to practice tallying of categories. A category is tallied every three seconds, in sequence, in a column, indicating the interaction which is occurring at the time. In the VICS the categories are entered in a seventeen-row by seventeen-column matrix, which presents information clearly and succinctly about the type, sequence, and amount of verbal behavior which has occurred.

The VICS is sensitive to whether or not the behavior is initiatory or responsive and includes student and teacher categories. Students' responsive behavior is described as predictable or unpredictable. Teacher responses to students are also subdivided into categories of acceptance or rejection of behaviors, feelings, and ideas.

The VICS categories of verbal behavior are as follows:

Teacher-Initiated Talk:

- 1) Gives information or opinion
- 2) Gives directions
- 3) Asks narrow questions
- 4) Asks broad questions

Teacher Response:

- 5a) Accepts ideas
- 5b) Accepts behavior
- 5c) Accepts feeling
- 6a) Rejects ideas
- 6b) Rejects behavior
- 6c) Rejects feeling

Pupil Response:

- 7a) Responds to teacher predictably
- 7b) Responds to teacher unpredictably
- 8) Responds to another pupil

Pupil-Initiated Talk:

- 9) Talks to teacher
- 10) Talks to another pupil

Other:

- 11) Silence
- 12) Confusion

The trained observer either sits in the classroom or listens to a tape of the classroom verbal interaction. An example of such interaction might go as follows.

- | | |
|---|--------|
| Teacher: Open your books to page six. | 2 |
| Pupil: Which book should we be looking at? | 9 |
| Teacher: If you had paid attention, you would know. | 6b |
| Teacher: Now, on page six there is a diagram which shows the relationships between population density and types of occupation. I think this is an excellent diagram for our purposes. | 1
1 |
| Teacher: Does anyone have some ideas about why these two factors might be related? | 4 |

Each verbal statement is given a category number which is recorded during the observation. These appear just to the right of the interaction example. Following the observation session

the observer transfers the category numbers which have been tallied in the classroom into the specially designed matrix two at a time. The variety of interaction during the period of time observed is thus revealed. As an example, the tallies for the above example of classroom interaction are entered in the matrix (Figure 2).

The recorder enters the tally as pairs of numbers. The first pair is 2-9 (note above example), the second pair is 9-6b, the third pair is 6b-1, and so on. The particular cell in which the observed interaction appears is made by using the first number in the pair to indicate the row, and the second number to indicate the column.

Once the tallies are entered in the matrix the interaction pattern for the classroom can be interpreted. Different parts of the matrix reflect different kinds of classroom interaction and are divided into general areas. Each area is accompanied by an analysis for the benefit of data interpretation, and corresponds to specific cells or groups of cells in the matrix (Fig. 3).

- Area A This is the area of prolonged teacher initiation.
- Area B The cells in this area indicate teacher initiated statements followed by teacher response statements, either accepting or rejecting.
- Area C This group of cells includes all pupil talk which follows teacher initiated talk.
- Area D Area D indicates teacher response statements followed by teacher initiated statements.
- Area E This area indicates prolonged accepting behavior on the part of the teacher.
- Area F These cells indicate teacher accepting behavior followed by teacher rejecting behavior.
- Area G This area shows accepting teacher statements followed by any student statements.
- Area H Area H indicates teacher rejecting behavior followed by accepting behavior.
- Area I These cells indicate extended rejecting behavior on the part of the teacher.
- Area J These cells show all pupil statements which follow teacher rejecting statements.

Figure 2
VICS Matrix

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from Amidon, E. and Hunter, E. Improving
Teaching: The Analysis of Classroom Verbal
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Figure 3
VICS Analysis Guide

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- Area K This area indicates pupil response behavior followed by teacher initiated behavior.
- Area L This group of cells show student response followed by teacher acceptance.
- Area M Area M shows teacher rejection of pupil response.
- Area N These cells show extended student response to either the teacher or another pupil.
- Area O Area O indicates pupil response statements followed by pupil initiated statements.
- Area P These cells indicate pupil initiated behavior followed by teacher initiated behavior.
- Area Q This area shows pupil initiated talk followed by teacher acceptance.
- Area R Area R indicates teacher rejection of pupil initiated talk.
- Area S These cells indicate pupil initiated statements followed by student response statements.
- Area T This area indicates extended pupil initiated talk to either the teacher or another pupil.
- Area U Area U indicated silence or confusion.

The matrix reveals the amount, the sequence, and the pattern of verbal behavior in the classroom according to categories. One can determine, for example, how much direction the teacher gave, or how much the students were accepted or rejected. One can also determine from the matrix what behaviors preceded or followed other behaviors. Specific instructions for the use of the VICS can be found in E. Amidon and E. Hunter, *Improving Teaching: The Analysis of Classroom Verbal Interaction*, (New York: Holt, Rinehart and Winston, 1966).

The Tuckman Student Perception of Teacher Style (SPOTS)

Developed by Bruce W. Tuckman, the Student Perception of Teacher Style (SPOTS) is a student rating of teacher directiveness. Unlike the FSIA or the VICS, the SPOTS technique utilizes the cumulative observations of students to rate teachers on a scale of directive-non-directive classroom behavior. After a careful perusal of the educational literature, Tuckman operationally defined directive teaching as follows (Tuckman, 1970, 395-396):

- 1) Formal planning and structuring of course work
- 2) Minimization of informal work or small group work
- 3) Rigid structuring of such small group work as is employed
- 4) Rigid structuring of individual and class activities
- 5) Emphasis on factual knowledge or knowledge derived from sources of authority (books, school administrators)
- 6) Use of absolute and justifiable punishment
- 7) Minimization of the opportunity to make and to learn from mistakes
- 8) Maintenance of formal relationship with students
- 9) Assumption of total responsibility for grades
- 10) Maintenance of formal classroom atmosphere

Following the original findings in which the SPOTS was analyzed for internal consistency, reliability, and validity, the rating scale was reconstructed into a shorter and more conceptually concise instrument. The revised SPOTS has seventeen items.

The SPOTS is a practical teacher rating scale which is easy to administer, simple to score, and does not require trained observers for data collection. It is an efficient measurement of teacher directiveness.

The SPOTS requires the students to describe specific aspects of teacher behavior and the classroom environment on a nine point rating scale. Highly directive behavior is reflected at the low end of the scale (1), while non-directive behavior is reflected by the upper end (9). The descriptive nature of the instrument makes it non-threatening, as opposed to an evaluative instrument by which the students rate teacher behavior or the educational environment.

Since the SPOTS instrument was used in several of the research reports in this volume, it is reproduced as Appendix A. Instructions and suggestions for the use of the SPOTS appear as models within the various research reports, but may also be found in Bruce W. Tuckman, A technique for the assessment of teacher directiveness, *The Journal of Educational Research*, 1970, 63, 395-399.

The Hill Interaction Matrix (HIM)

The Hill Interaction Matrix (HIM) permits the conceptualization of verbal interaction on two dimensions: content and process. The developer of this instrument, William Fawcett Hill, suggests that verbal interaction falls into four categories within the content dimension and five categories within the process dimension.

Content Dimension

The content dimension of verbal interaction is concerned with the subject matter being discussed. All possible content fits into four categories.

Topic. Any topic other than the group. Most classroom settings have a large amount of "topic" matter. Social "small talk" and socializing fit here, also.

Group or DYAD. A dyad is another way of saying a pair. Statements like "When shall we meet again?" would be dyadic. The "topic" is the group or dyad.

Personal. The focus of discussion is upon an individual.

Relationship. "What" is being talked about are the feelings and thoughts that two people have for each other. Relationship discussions are characterized by a direct discussion of the existing relationship between people.

The process dimension reflects the manner in which things are discussed. Five categories accommodate all possible processes: responsive, conventional, assertive, speculative, and confrontive.

Similar to the matrices discussed earlier, the categorization of verbal interaction is based upon two characteristics, one representing each dimension. These are then plotted on a twenty cell matrix (Figure 4).

The HIM is a useful tool for describing how the group is interacting.

Research based on the HIM suggests it is often necessary for a group to initially spend time "finding its bearings" in the prework categories. Productive groups, however, may move directly into the "work" categories. Also, evidence suggests that productive groups spend some time in almost all of the cells of the matrix during a normal session.

Specific instructions for the use of the HIM can be found in William Fawcett Hill, HIM: Hill Interaction Matrix and HIM: Hill Interaction Matrix Scoring Manual, (University of Southern California Youth Studies Center, 1965).

The Tuckman Teacher Feedback System (TTFS)

Developed by the same person who originated the SPOTS that was described previously, The Tuckman Teacher Feedback System (TTFS) is a comprehensive feedback system that provides the teacher with specific, nonthreatening information about the human elements of teaching. The Tuckman System allows the teacher to set personal goals and to work toward them, receiving useful

Figure 4
Hill Interaction Matrix

		CONTENT DIMENSIONS				
		Nonmember Centered		Member Centered		
		I. TOPIC	II. GROUP OR DYAD	III. PERSONAL	IV. RELATION SHIP	
PROCESS DIMENSIONS	Prework	A. RESPONSIVE	IA	IIA	IIIA	IVA
		B. CONVENTIONAL	IB	IIB	IIIB	IVB
		C. ASSERTIVE	IC	IIC	IIIC	IVC
	Work	D. SPECULATIVE	ID	IID	IIID	IVD
		E. CONFRONTIVE	IE	IIE	IIIE	IVE

From HIM: Hill Interaction Matrix and HTM: Hill Interaction Matrix Scoring Manual. University of Southern California, Youth Studies Center, 1965.

feedback for personal change. The Tuckman System is designed for feedback purposes rather than evaluative or judgment purposes.

Tuckman and his colleagues carried out two experiments which demonstrated that teachers can and will change their behavior when they receive nonthreatening feedback from students and other teachers (Tuckman and Oliver, 1968; Tuckman, McCall and Hyman, 1969). These experiments provide the theoretical and experimental basis for the TTFS.

The Tuckman System (TTFS) employs a basic data gathering instrument (Fig. 5) and a summary formula (Fig. 6). The instrument consists of twenty-eight adjectives, each chosen to describe a human element in teaching and each paired with an approximate opposite. Four human factors or dimensions are identified by the summary formula.

The first factor is creativity. The creative teacher is imaginative, experimenting, original, iconoclastic, uninhibited, and adventurous. The second factor is dynamism, reflected by a combination of dominance and energy. The dynamic teacher is outgoing, extroverted, outspoken, and assertive. The third factor describes the teacher's organized demeanor and isolates the qualities of organization and self-control. The fourth factor includes warmth and acceptance. It describes the warm, sociable, amiable, patient, fair, gentle, and accepting teacher.

The TTFS can be used effectively in a seven-step feedback system. The steps are:

- 1) Select a team of teachers willing to give one another feedback about their teaching.
- 2) Teachers observe one another and fill out the instrument (Fig. 5).
- 3) Each teacher receives consensus summary of his/her teaching by other teachers (Fig. 6).
- 4) Teachers meet as a group to discuss feedback.
- 5) Teachers engage in strength training. Now that the teachers know from the feedback forms what their weaknesses are, each can solicit ideas from other teachers to overcome these weaknesses. For example, a teacher who is described as weak on the organization dimension, can solicit specific suggestions that will help improve organizational skills.
- 6) Teachers apply strengths in regular classes.
- 7) Teachers observe one another again and share feedback to

FIGURE 5

Tuckman Teacher Feedback Form (TTFF)*

Teacher observed _____ Observer _____ Date _____

Place an X in that one space of the seven between each adjective pair that best indicates your perception of the teacher's behavior. The closer you place your X toward one adjective or the other, the better you think that adjective describes the teacher.

1.	ORIGINAL	:	:	:	:	:	:	:	:	CONVENTIONAL
2.	PATIENT	:	:	:	:	:	:	:	:	IMPATIENT
3.	COLD	:	:	:	:	:	:	:	:	WARM
4.	HOSTILE	:	:	:	:	:	:	:	:	AMIALE
5.	CREATIVE	:	:	:	:	:	:	:	:	ROUTINIZED
6.	INHIBITED	:	:	:	:	:	:	:	:	UNINHIBITED
7.	ICONOCLASTIC	:	:	:	:	:	:	:	:	RITUALISTIC
8.	GENTLE	:	:	:	:	:	:	:	:	HARSH
9.	UNFAIR	:	:	:	:	:	:	:	:	FAIR
10.	CAPRICIOUS	:	:	:	:	:	:	:	:	PURPOSEFUL
11.	CAUTIOUS	:	:	:	:	:	:	:	:	EXPERIMENTING
12.	DISORGANIZED	:	:	:	:	:	:	:	:	ORGANIZED
13.	UNFRIENDLY	:	:	:	:	:	:	:	:	SOCIABLE
14.	RESOURCEFUL	:	:	:	:	:	:	:	:	UNCERTAIN
15.	RESERVED	:	:	:	:	:	:	:	:	OUTSPOKEN
16.	IMAGINATIVE	:	:	:	:	:	:	:	:	EXACTING
17.	ERRATIC	:	:	:	:	:	:	:	:	SYSTEMATIC
18.	AGGRESSIVE	:	:	:	:	:	:	:	:	PASSIVE
19.	ACCEPTING (people)	:	:	:	:	:	:	:	:	CRITICAL
20.	QUIET	:	:	:	:	:	:	:	:	BUBBLY
21.	OUTGOING	:	:	:	:	:	:	:	:	WITHDRAWN
22.	IN CONTROL	:	:	:	:	:	:	:	:	ON THE RUN
23.	FLIGHTY	:	:	:	:	:	:	:	:	CONSCIENTIOUS
24.	DOMINANT	:	:	:	:	:	:	:	:	SUBMISSIVE
25.	OBSERVANT	:	:	:	:	:	:	:	:	PREOCCUPIED
26.	INTROVERTED	:	:	:	:	:	:	:	:	EXTROVERTED
27.	ASSERTIVE	:	:	:	:	:	:	:	:	SOFT-SPOKEN
28.	TIMID	:	:	:	:	:	:	:	:	ADVENTUROUS

*from Tuckman, B. Feedback and the change process. Phi Delta Kappan, 1976, 57, 341-344.

FIGURE 6

Tuckman Teacher Feedback Form Summary Sheet*

Person Observed _____ Observer _____ Date _____

A. *Item Scoring*

- I. Under the last set of dashes on the sheet of 28 items, write the numbers 7-6-5-4-3-2-1. This will give a number value to each of the seven spaces between the 28 pairs of adjectives.
- II. Determine the number value for the first pair, Original-Conventional. Write it into the formula given below on the appropriate line under Item 1.

For example, if you place an X on the first dash next to "Original" in Item 1, then write the number 7 on the dash under Item 1 in the summary formula below.
- III. Do the same for each of the 28 items. Plug each value into the formula.
- IV. Compute the score for each of the four dimensions in the summary formula.

B. *Summary Formula and Score for the Four Dimensions*

I. Creativity

$$\text{Item } (1 + 5 + 7 + 16) - (6 + 11 + 28) + 18 \\ (\quad + \quad + \quad + \quad) - (\quad + \quad + \quad) + 18 = \underline{\hspace{2cm}}$$

II. Dynamism (dominance and energy)

$$\text{Item } (18 + 21 + 24 + 27) - (15 + 20 + 26) + 18 = \\ (\quad + \quad + \quad + \quad) - (\quad + \quad + \quad) + 18 = \underline{\hspace{2cm}}$$

III. Organized Demeanor (organization and control)

$$\text{Item } (14 + 22 + 25) - (10 + 12 + 17 + 23) + 26 \\ (\quad + \quad + \quad) - (\quad + \quad + \quad + \quad) + 26 = \underline{\hspace{2cm}}$$

IV. Warmth and Acceptance

$$\text{Item } (2 + 8 + 19) - (3 + 4 + 9 + 13) + 26 \\ (\quad + \quad + \quad) - (\quad + \quad + \quad + \quad) + 26 = \underline{\hspace{2cm}}$$

*from Tuckman, B. Feedback and the change process. Phi Delta Kappan, 1976, 57, 341-344.

determine whether there has been a change in behavior in the recommended direction.

A more elaborate description of the TTFS can be found in Bruce W. Tuckman, *Feedback and the change process*. Phi Delta Kappan, 1976, 57, 341-344.

Conclusion

Systematic data collection for teacher behavior and classroom environment studies presents numerous problems, but the potentials are promising. One potential use for observation data includes the assessment of teacher classroom style. While beyond the scope of the present review, the author expects this issue to persist as systematic observation, particularly student rating scales of teacher performance, becomes increasingly more sophisticated and revealing for feedback remediation purposes.

Teachers, curriculum specialists, administrators and teacher educators must continue to test assumptions about the interrelationships between structural changes in the educational environment, such as team teaching, the open classroom, modular scheduling, competency based teacher training, individualized instruction, and alternative education models, and the kinds of corresponding teacher behavior changes expected and desired. Consistent, long range research efforts are needed in order to develop a viable body of knowledge which will enable the attainment of educational goals for the future.

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OTHER SOURCES FOR TEACHER FEEDBACK INSTRUMENTS

Anderson, R.D., J. A. Struthers and H. H. James. The teaching strategies observation differential. In Stanford, G. and A. Roark (Eds.) *Human Interaction in Education*. Boston: Allyn and Bacon, 1974, 274-280.

The Teaching Strategies Observational Differential (TSOD) provides a measure of overall teaching strategy or style used by a teacher, including both verbal and nonverbal interactions between teacher, students and curriculum materials. The educational objectives and approaches to learning encouraged by the modern curriculum development projects, i.e., materials other than traditional books, are basic to the rationale of this instrument. Additional information may be obtained by writing to Professor Anderson, College of Education, University of Colorado, Boulder, Colorado, USA.

Perkins, H. V. A procedure for assessing the classroom behavior of students and teachers. *American Educational Research Journal*, 1964, 1, 249-260.

This procedure presents two instruments, Student Categories and Teacher Categories, for assessing classroom behavior. Standardized instruments yield data on behavior, role and learning activities.

Richardson, E. A self-evaluation instrument. *NASSP Bulletin*, 1975, 59, 7-17.

This technique was developed by teachers as a self-evaluation instrument. After identifying 13 basic characteristics of talented teachers, the developers designed 65 statements that reflected attitudes about the 13 basic traits. A final score can be analyzed to determine the individual's strengths and weaknesses regarding these traits. The instrument is easily scored and analyzed.

Simon, A. and E. G. Boyer (Eds.) *Mirrors for Behavior: An Anthology of Classroom Observation Instruments*. Philadelphia: Research for Better Schools, 1967.

This is a comprehensive collection containing several instruments useful in teacher style and classroom environment analysis.

Simond, B. A concept of teaching. Teachers College Record.
1960, 61, 229-241.

This approach to interaction analysis is based on intellectual skills using logical steps of problem solving and draws from inductive and deductive reasoning, scientific methods, and semantic principles. The intellectual skills approach to classroom interaction analysis was not included in the review in favor of instruments stressing social skills.

STUDENT PERCEPTION OF TEACHER STYLE IN GEOGRAPHY:
AN EXPLORATORY STUDY IN LONDON, U.K.

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ABSTRACT

An exploratory study of student perception of teacher style in selected London schools used the SPOTS instrument. The sample was comprised of 130 boys and girls in six schools over the fourth and fifth years of schooling and the sixth form. A public school, grammar school and comprehensive school were surveyed. The distribution of scores suggested that teacher directiveness was strong to moderate for more than half the variables. The data suggested that teachers rather tightly control the activities and learning situations in their classes. Group work was not a common method of class management. Implications for teacher training and the adoption of new curriculum materials were discussed.

PERCEPTION PAR LES ÉLÈVES DU MODE D'ENSEIGNEMENT DE LA GÉOGRAPHIE:
UNE ÉTUDE DE RECHERCHES À LONDRES, ROYAUME-UNI-

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RÉSUMÉ

Cette étude explore la perception par les élèves du mode d'enseignement de l'instituteur dans des écoles londoniennes choisies pour employer l'instrumentation de S.P.O.T.S. L'expérience comprenait 130 garçons et filles de 6 écoles dans leurs quatrième, cinquième et sixième années. Une école privée, une école publique et une école expérimentale furent considérées. La distribution des points d'évaluation suggère que l'initiative de l'enseignant est importante quand il s'agit d'évaluer plus de la moitié des variables.

Les renseignements suggèrent que les enseignants contrôlent assez fermement les activités et situations pédagogiques de leurs classes.

Le travail d'équipe n'est pas une méthode fréquemment employée en classe.

ВОСПРИЯТИЕ СТУДЕНТАМИ СТИЛЯ ПРЕПОДАВАТЕЛЯ В КЛАССЕ
ГЕОГРАФИИ? ТЩАТЕЛЬНОЕ ИССЛЕДОВАНИЕ В ЛОНДОНЕ,
СОЕДИНЁННОЕ КОРОЛЕВСТВО.

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Соединённое Королевство

ВЫДЕРЖКА

В избранных школах Лондона было произведено тщательное исследование восприятия студентами стиля преподавателя посредством вопросников "SPOTS" (Восприятие студентами стиля преподавателя) 130 мальчиков и девочек из шести школ в возрасте 15, 16, 17, и 18 лет были подвержены испытанию. Наблюдались: общественная школа, начальная школа и общеобразовательная школа. Распределение показаний указывает, что директивность преподавателя проявляется в сильной и умеренной степени в большей половине исследовательских материалов. Данные указывают, что учебный процесс и поведение учеников в классе находится под строгим контролем преподавателя. Причастность этих данных к образованию учителей и использование их для создания нового учебного плана подлежит дискуссии.

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Student Perception of Teacher Style in Geography:
An Exploratory Study in London, U.K.

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The Student Perception of Teacher Style research project was initiated with three principal interests. First, research on general dimensions of teacher behavior is a relatively new endeavor on the part of British educators. The directive-non-directive dimension investigated by the project was a widely discussed topic, but has been infrequently conceptualized as a research question. Second, the research technique incorporated in this research placed a premium on student observations of teacher behavior. Usually, data reflecting teacher behavior were collected by specially trained observers, administrators, or other supervisory personnel. Such observations occurred infrequently after a teacher assumed a position in a school. Third, the comparison of teacher classroom style in different educational systems is a research topic of considerable contemporary interest, since all educational systems, local to national, are undergoing some degree of change. During such times, there is usually considerable interest in viewing teacher training models and the effects they ultimately have on various aspects of teacher classroom behavior. This research adds a national, as well as an international dimension to those concerns.

The research instrument used in the data collection was the Student Perception of Teacher Style (SPOTS) (Tuckman, 1970). That instrument is described in detail by Steinbrink in an article included in this volume. For research purposes, the SPOTS was used in the form in which it appears as Appendix A.

Survey Sample and Data Collection

The sample used for data collection was comprised of 130 boys and girls attending six schools. Seven teachers were involved. All schools and teachers were either in London or its periphery and were associated in some way with the University of London Institute of Education. Some schools were practising schools for students working towards a Teacher's Certificate while others who cooperated had members of the staff doing advanced degree work at the Institute. It should be noted that the teachers received their initial training at a variety of institutions throughout the country and ranged from those with only a few years teaching experience to those with 15 years and more. It should also be noted that the researcher was hesitant and cautious about approaching schools to take part in SPOTS due to anticipated teacher resistance towards a questionnaire which probed into a wide range of teaching behavior, even though the anonymity of teachers and schools was guaranteed in the written report. The mild embarrassment, though cheerful goodwill, of several participating teachers seemed to confirm the hypothesis that a large scale SPOTS survey was not entirely feasible.

The schools involved consisted of a boy's public school, an old established girl's grammar school, a former secondary modern school, newly comprehensive, and three additional comprehensive schools. The proportions of the sample by school type cannot be considered representative of the mix of schools in London and its periphery. The sample was biased towards those schools known to the writer and the information which it yields cannot be generalized to London or English schools. This research, it is reiterated, must be viewed as an exploratory survey.

Those responding to the SPOTS ranged from fourth to fifth year pupils to those in the sixth form. The sample lacks response from pupils in their first three years of secondary schooling. SPOTS was administered once to each group in the second or third terms of 1974-75. The results are presented and discussed in general for all schools.

Data Analysis

The data were first analyzed by frequency counts and percentages of scores recorded for the 17 variables on the SPOTS (Table 1). The reader should keep in mind that the low end of the scale (1) suggests a directive teacher style, while the upper end (9) suggests a non-directive teacher style. The reader should refer to the article by Steinbrink for a detailed description of the directive dimension.

Generally speaking on variable 1, pupils perceived teachers to be more interested in getting ideas across rather than forcing in facts or having students think for themselves. Scores were not recorded at the extremes, though there was a slightly stronger tendency for a choice to be recorded at eight rather than two. The peak of the distribution, 32.3 per cent, occurred at six, and six more pupils recorded their scores at seven or eight, rather than four or five.

Variable 2, a measure of the rigidity with which a teacher organized pupils had a distribution which was heavily skewed toward the directive end of the scale. Nearly two-thirds of the pupils perceived their teacher as directing them to do what was expected most of the time.

A measure of teacher informality, variable 3, was skewed toward the directive end though not so markedly as with variable two. Peaks occurred at possible responses four and five and 64 percent of all responses occurred in the middle range.

Variable 4 examined teacher behavior in the area of questioning, a crucial ingredient in student-teacher interactions. Here the distribution moved strongly to the non-directional end of the scale where 54 percent of the pupils scored in the middle range and 40 percent in the upper range of seven, eight, or nine. This indicated that within the framework of a lesson there was a general feeling of freedom to ask the teacher questions yet asking

questions may be understood as part of a teacher's formal rather than informal relationship with the class. Variable 5 explored the question-answer interaction routine more deeply and probed how the student felt about initiating discussion or discussing an answer. Half the respondents chose the middle range and over one-third the upper range, with the greatest frequencies occurring at 4, 5, 6 and 7. In summary, one-third of the pupils felt free to initiate discussion or present a point of view without being asked by the teacher.

Another facet of teacher style was determined by the sources from which the teacher derived authority in relation to knowledge. The choices given along the continuum comprising variable 6 received the most even distribution of scores of all variables. The highest frequency occurred at 5, with 59 percent of the scores falling along 4, 5, and 6. One-third of the remaining were evenly spread in the other categories. On the whole, teachers were perceived as being willing to give another point of view in addition to that of the book.

The responses to the way in which teachers were addressed (variable 7) revealed that nearly two-thirds of the pupils felt that a teacher would not like to be called by a first name, although one-third felt it might be permitted outside school. Indeed, any other spread of responses would have been surprising in the English educational context and very little can be read into this result. The responses may have little of significance regarding the degree of rapport which exists between a teacher and his class.

Variable 8 was related to jokes and humor as a particular dimension of the class-teacher relationship. The distribution of responses had a very peaked curve over items 5 and 6 which accounted for eighty percent of the responses. Jokes and humorous stories were perceived to be directly related to lessons.

The teacher's attitude towards tests, grades and course planning was examined through variable 9. A negligible proportion of the sample perceived their teachers as asking pupils to make decisions about tests, grades and so on. The peak of the distribution occurred at 5. Over two-thirds of the responses fall in the middle range which indicated student satisfaction of the general practice adopted. The negligible proportion at the upper end of the scale is worth noting.

Eleven percent of the sample did not respond to variable 10, which focused upon the amount of committee work and group projects included in the class. One may enquire as to whether this was a relevant question for many of the pupils and the high percentage not responding seemed to imply that they have little or no concept of such work. Results on variables 16 and 17 confirmed this. The responses to the remaining eighty-nine percent of the sample rounded off evenly after a peak at 5. This suggested that when implemented as a teaching strategy, some degree of

choice for group and committee work was permitted, but at the same time, teacher direction was given in the handling of group work.

The responses to variable 11, gauging the variety and number of activities permitted at any one time in the classroom were highly skewed to the directive end of the scale. One-hundred seven of the responses were made at 1, 2, or 3. Evidence that there was uniformity in the types of tasks undertaken by the classes was overwhelming. Group work was not permitted alongside individual tuition. The pupils did not perceive a variety of tasks occurring simultaneously in the classroom.

Variable 12 responses elicited pupils' perceptions of their teachers' attitudes towards a display of anger; these were skewed toward the directive end of the scale. The peak extended over items 3, 4, and 5, but with the higher percentage (40 percent) falling in the middle range. Yet there was some feeling that a teacher could be told why a pupil felt angry and it is noteworthy that fourteen percent scoring 7, 8, or 9 felt that a pupil should be permitted to show anger without the teacher becoming angry. The teachers were generally perceived as maintaining a formal classroom atmosphere and suppressing displays of anger on the part of the pupil.

From the evidence to responses on Variable 13, assessing the role strength of a teacher, nearly two-thirds of the pupils perceived that the teacher acted like a teacher most of the time, but sometimes seemed more like a friend. Nearly all the remaining students felt that the teacher acted as a teacher all of the time. The results suggested a rigid classroom atmosphere and formal relationships between teacher and students.

A large proportion (36 percent) of the pupils did not respond to variable 14, rating the initial opening task of a lesson, taking attendance. This suggested it was not relevant to pupil experiences in England where the pattern of ascertaining attendance was not usually built into each lesson. Those responding ranged fairly widely over items 5, 6, 7, and 8. This item would have been more meaningful to students if it referred to 'calling the register' rather than 'taking attendance'. The homework variable (15) was unanswered by thirteen percent of the sample. It could be that homework is assigned each day, but a period exceeding a day would be given for its completion. This pattern would cause pupils to be unresponsive to the 1-3 section of the variable. The responses suggested that daily and long term homework projects were the norm. The peak occurred at 5 on the scale with a slight skew toward the non directive end.

The last two variables, related somewhat to 10, measured the pupils' perceptions of small group work or work in pairs. Variable 16 had the greatest frequency of responses at one, on the scale, for any of the seventeen variables. Fifty-six percent of the responses fell at the directive end of the scale. Seven

percent were toward the non directive end of the scale. Variable 17 was left unanswered by twenty two percent of the pupils. This was not surprising in view of the responses to variable 16. However, sixty-two percent of the responses on variable 17, which directed attention to the organization of group work were toward the non directive end of the scale. The pupils perceived that they could usually decide with whom to work when working in pairs. Variables 16 and 17 made an interesting comparison, since group or committee work was not frequently used, and when it was used the pupils were permitted the selection of individuals with whom to work, either as a pair or in a group. Perhaps it is this selection process which discourages the teacher from more group work. Teachers have little knowledge of the conditions for the success of group work or the underlying educational rationale for its adoption. There has been little more than a general exhortation to adopt working in groups as a classroom procedure and it has yet to be built into teacher training in a pedagogically acceptable manner.

The overall results obtained from an examination of percentages across the nine point scale are perhaps, more concisely represented by an analysis of means and standard deviations. The means calculated for each variable occurred in the middle range of 4, 5, 6 in the case of 12 variables (Table 2). Variable 11, one of the measures of classroom management, had the lowest mean, 2.37, and a standard deviation of 1.63. This highlights the fact that only one type of activity or organization in class at any one time was perceived by the pupils. Variables 2, 7, and 16 had means of 3.35, 3.12, and 3.16 respectively, and were not obviously complementary to one another. However, variables 2 and 16 related to control techniques and 7 to interaction and teacher role. It must be recognized that the two aspects are by no means unrelated.

An examination of the standard deviations showed that fifteen variables had deviations between 1 and 2; this reflected a substantial agreement among respondents. Variables 8, 9, and 10, oriented respectively to teacher attitude toward humor, tests, grades and course planning and project work fell between 1 and 1.5 and demonstrated the closest agreement for all variables. Teacher directiveness was very uniformly perceived in these spheres. The only two variables having standard deviations beyond 2, 2.09 in each case, were 12 and 16 which measured attitude to displays of emotion and the occurrence of group work.

The difficulty of interpreting the groupings of means and standard deviations for as many as 17 variables indicated the need for another grouping procedure of a more statistically powerful nature. Factor analysis performs such a task. It has become apparent, in the attempt to relate one variable to another, that while all variables measured different aspects of teacher behaviour there was a degree of interrelatedness. By examining the intercorrelations among the 17 variables, it might be possible to reach a clearer conceptual understanding of the significant dimensions of the classroom milieu.

From the factor analysis, three factors, categories of variables, emerged. The analysis revealed that variables 7, 10, 11, 12, 13 and 16 were most closely correlated to one another, likewise variables 1, 2, 9, 15 and 17 and variables 3, 4, 5, 6, and 14. The first clustering suggested a control factor relating to teacher role and class management; the second suggested a cognitive orientation factor; and the third clustering, a teacher interaction factor.

The factor analysis procedure grouped variables based upon the commonality between subjects for those particular variables. It is possible that bias may place a particular variable in one mode in one setting, but in a different mode in another setting. This suggested that the scale was not culture free, and must be evaluated in terms of the setting in which it was used.

In relation to the first two factors, it was discerned that a greater rigidity and directiveness were involved in teacher behaviour and attitude than in the third factor, the teacher interaction mode, where students perceived a more flexible attitude and behavior on the part of the teacher. Such flexibility was nevertheless geared towards the control mode and cognitive orientation. The general picture which emerged was of a teacher, who on the whole, came across to his class in that clearly defined role. The teacher rather tightly controlled the activities and learning situations in class, and did not embrace group work to any large extent. Into his teaching style however, the teacher incorporated humor and displayed a more relaxed attitude towards questions, discussion and disagreement which probably promoted a greater feeling of freedom and degree of responsiveness.

Given a teacher's responsibility and the present method of organizing schools and learning, together with present staff to pupil ratios, it is understandable that managing and directing the work of the class, as a whole, is perceived to be rigidly controlled. This study suggests that the style or instructional method of teaching should become less directive.

At this point, the results outlined have sociological implications and touch upon the periphery of the schooling/deschooling debate. The revealed pattern of apparently rigid classroom management and humane teaching needs to be placed in an historical perspective also. Managing learning is an evolving process and one which as a compulsory 5-16 activity for all, does not have a long history.

The analysis of the data has several implications for geographic education. However, a much larger and more representative sample would be required before firm conclusions could be made. The data suggest that an introduction to and a participation in group work is necessary and highly desirable in the training of geography teachers (Graves, 1976; Slater, 1974). This, in turn, would have its impact on classroom teaching style in the control and interaction modes. If newly developed English curriculum

materials partly organized around group work and tasks are to be used effectively, then teacher training must alter the behavior of teacher-trainees to accomodate that group work. Schools also need to be more flexible in creating situations which allow for group work. However, it can be readily acknowledged that the skilled, motivated and dedicated teacher can organize highly effective group work despite restraints.

Trainees and pupils have been observed to respond positively to group work and grow confident in sharing the management side of classroom control. Prospective teachers need to become more skilled in the control and interaction modes with a class of pupils so that a responsible attitude toward learning may be achieved. Recognition by pupils of a responsibility for their own learning would eventually free the teacher, hopefully in association with colleagues, for the design and implementation of additional non-directive learning experiences. The non-directive approach is more likely to appeal to and reach a wider spectrum of pupils. These considerations are of major significance during a time when mixed ability teaching and numerous reluctant learners characterize many English schools (Hannam, 1971).

TABLE 1
SPOTS: FREQUENCY COUNTS AND PERCENTAGES

Vari- ables	Scale									
	0	1	2	3	4	5	6	7	8	9
1	1* 0.76**	4 3.08	3 2.31	12 92.3	9 6.92	21 16.15	42 32.30	26 20.00	10 7.69	2 1.54
2	2 1.54	15 11.54	26 20.00	37 28.46	19 14.62	17 13.08	10 7.69	3 2.31	0 0	1 0.76
3	1 0.76	3 2.31	11 8.46	23 17.69	30 23.07	31 23.85	19 14.62	8 6.15	2 1.54	2 1.54
4	1 0.76	0 0.00	2 1.54	5 3.85	15 11.54	22 16.92	33 25.38	21 16.15	6 4.62	25 19.23
5	1 0.76	3 2.31	2 1.54	12 9.23	11 8.46	24 18.46	30 23.08	27 20.77	14 10.77	6 4.62
6	1 0.76	6 4.62	12 9.23	5 3.85	16 12.30	35 26.92	26 20.00	17 13.07	8 6.15	4 3.08
7	7 5.38	32 24.62	19 14.62	25 19.23	18 13.85	17 13.07	8 6.15	1 0.76	0 0.00	3 2.31
8	2 1.54	2 1.54	4 3.08	5 3.85	19 14.62	50 38.46	36 27.69	9 6.92	3 2.31	0 0.00
9	6 4.62	4 3.08	12 9.23	17 13.07	21 16.15	45 34.62	22 16.92	1 0.76	2 1.54	0 0.00
10	15 11.54	3 2.30	0 0.00	6 4.62	18 13.85	43 33.08	29 22.31	9 6.92	5 3.85	2 1.54
11	5 5.38	42 32.31	41 31.54	24 18.46	3 2.31	4 3.08	1 0.76	7 5.38	1 0.76	0 0.00
12	11 8.46	16 12.30	11 8.46	22 16.92	22 16.92	19 14.62	12 9.23	7 5.38	8 6.15	2 1.54
13	6 4.62	8 6.15	7 5.38	24 18.46	36 27.69	30 23.08	17 10.77	0 0.00	2 1.54	3 2.31
14	47 36.15	2 1.54	4 3.08	4 3.08	6 4.62	18 13.85	17 13.07	14 10.77	11 8.46	7 5.38
15	17 13.07	3 2.31	4 3.08	8 6.15	13 10.00	36 27.69	21 16.15	14 10.77	9 6.92	5 3.85
16	6 4.62	41 31.54	15 11.54	19 14.62	12 9.23	22 16.92	5 3.85	6 4.62	2 1.54	2 1.54
17	28 21.54	1 0.76	1 0.76	1 0.76	5 3.85	7 5.38	5 3.85	16 12.30	24 18.46	42 32.30

* Frequencies

** Percentages

TABLE 2
LONDON SPOTS: MEANS AND STANDARD DEVIATIONS*

Variables	Mean	Standard Deviation
1	5.57	1.71
2	3.35	1.61
3	4.44	1.61
4	6.26	1.81
5	5.75	1.79
6	5.11	1.91
7	3.12	1.87
8	5.11	1.27
9	4.38	1.45
10	5.24	1.41
11	2.37	1.63
12	4.12	2.09
13	3.96	1.60
14	5.87	1.95
15	5.38	1.77
16	3.16	2.09
17	7.58	1.76

* Means and standard deviations were calculated for responses only; blanks, or no response answers were omitted.

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PUPILS' PERCEPTIONS OF PEDAGOGICAL PROCESSES:
NEW ZEALAND

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ABSTRACT

In order to analyse the behavioral style of geography teachers, the Student Perception of Teacher Style was administered to 610 students in 28 Form 5 and 6 classes. It was observed that geographers had a significantly distinctive style of teaching compared to science teachers. However, the same group of geography teachers were found to behave differently when teaching at different class levels. The data suggested that syllabus statements had a significant effect not only on the cognitive orientation of a teachers' style, but also on the interaction and control modes of classroom behaviour.

PERCEPTION PAR LES ELEVES DU MODE D'ENSEIGNEMENT
EN NOUVELLE-ZELANDE

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RÉSUMÉ

Le test de la perception par les élèves du mode d'enseignement fut donné à 610 élèves dans 28 classes de 5^{ème} et 6^{ème} années pour analyser les composantes du mode d'enseignement des professeurs de géographie. Un mode d'enseignement distinctivement différent était caractéristique des géographes en comparaison avec les professeurs de sciences. Cependant, on remarqua que le même groupe de professeurs de géographie se conduisait différemment à différents niveaux de classes. Les renseignements obtenus suggèrent que les données du programme à suivre dans la classe ont un effet significatif non seulement sur l'orientation cognitive du mode d'enseignement, mais sur l'action réciproque et les méthodes de contrôle en classe.

ВОСПРИЯТИЕ УЧЕНИКАМИ СТИЛЯ ПРЕПОДАВАНИЯ В НОВОЙ ЗЕЛАНДИИ

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ВЫДЕРЖКА

Восприятие студентами манеры преподавания было испытано на 610 студентах 5-ых и 6-ых классов в 28 классах. (Ученики пятых и шестых классов Новой Зеландии по возрасту соответствуют ученикам 7-х, 8-х и 9-х классов Советского Союза.) Это было сделано для того, чтобы проанализировать элементы стиля преподавания учителей географии. Особая манера преподавания была характерна для географов, которая значительно отличалась от манеры преподавания естественных наук учителями в контрольной (в сравнительной) группе. Однако было обнаружено, что те же группы учителей географии вели себя иначе в классах различных уровней. Данные дают основания предполагать, что формулировка программы курса не только оказывает значительное влияние на познавательную ориентировку образа преподавания, но существует взаимодействие между последней и реакцией класса и т.о. является также способом контроля поведения в классе.

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Pupils' Perceptions of Pedagogical Processes:
New Zealand

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New Zealand secondary schools have until recently been content centered. Subject matter has determined school organization, administration and curriculum. The assumption that some subjects are intrinsically more beneficial than others in the intellectual and social development of students was the basic belief on which schools operated. Pupils were grouped according to their ability to study hard or easy subjects. Bright children studied Latin, History, Physics and Mathematics. The rest took English, Geography, Biology and Technical or Commercial subjects. Education was viewed as a process of imparting knowledge by "thought-inducing" subjects taught by expository methods.

This subject-oriented philosophy of secondary education has been largely rejected during the last decade as the theories of Piaget, Bruner and Bloom have been introduced into high schools. Their basic theory, that any subject can be used to achieve desired objectives if the teacher involves pupils in appropriate learning activities, has had a major impact on secondary education. Teaching-learning processes have assumed a new significance. There is a desire to know more about the differential learning effects of classroom teacher styles on the cognitive, affective and behavioural development of pupils. What factors influence the behavioural patterns of teachers? What are the effects of subject, syllabus, and age of pupil? Is there a distinctive style of teaching associated with each subject? If so what are the variable components which differ from subject to subject? Do different types of learning result from different teaching styles? These are some of the questions for which answers are required.

The aim of the research described in this paper was to study the behavioural style of geography teachers and to analyse those factors related to specific pedagogical processes.

New Zealand Research on Teaching Behaviour

Research on the classroom behaviour of New Zealand teachers has passed through three stages (Nuthall & Church, 1973). The first stage, initiated by Flanders in 1954, consisted of a series of attempts to design and use instruments suitable for recording and categorizing the behaviour that occurs during lessons (Flanders, 1960). Nuthall and Lawrence (1965) and Church (1969) devised modifications of "The Illinois Instrument for Analysing Classroom Discourse"; Adams (1969) worked with the Flanders technique for quantifying teacher influence; and Knight (1966) used the Taba system for coding classroom behaviour. The main

concern at this stage was with observing and describing in an objective manner the processes that occur in the classroom.

During the second stage correlation studies were made in an attempt to find inter-relationships between teacher behaviour variables and student learning outcomes. Wright and Nuthall (1970) discovered significant correlations between the questioning style of teachers and pupil achievement in science lessons. Correlation studies of this kind provided information on teaching behaviour which led to stage three: the experimental phase in which attempts were made to validate the types of relationships that had been suggested in the correlational studies. Church (1971) demonstrated that extraneous influences could be controlled to make experimental research in a classroom a valid method of studying teacher behaviour. He was able to identify significant aspects of teaching behaviour that were of critical importance in the development of learning.

The ultimate goal of those engaged in experimental studies of teaching behaviour was to construct models of transactions in the classroom which would lead to a theory of instruction (Adams, 1969) or a science of teaching (Nuthall & Church, 1973).

Are Interaction Studies the Best Method of Research?

All the major studies of teaching behaviour carried out in New Zealand have employed as the research technique the systematic observation, recording and categorization of instruction that occurred during classroom lessons. While this method has great value as a research instrument (Nuthall, 1974) it also has major limitations (Heath & Nielson, 1973). It is a very time consuming process which thus limits the number of teachers it is possible to include in the study. Conclusions from such studies are, as a result, based on small samples. Secondly, a teacher's performance when being observed or recorded might not be typical of his normal teaching style. Thirdly, the meaning of a teacher's behaviour might be perceived differently by the researcher than the pupils who are familiar with the cues used by the teacher. Finally, teaching is such a complex process that many of the variances cannot be measured adequately or conveniently on objective behaviour records (Remmers, 1963).

Interaction Analysis is a systematic approach to an organic set of operations in which each individual act acquires a different meaning depending on the nature of the whole learning situation (Taba, 1964). Interaction analysis studies have tended to focus on the verbal, visual and cognitive aspects of the teaching act. If a valid model or theory of teaching is to be constructed however and if it must take greater cognizance of the affective components of behaviour, then it must involve analyzing how pupils perceive and feel about their teacher.

In an attempt to overcome the disadvantages of interaction analysis, a rating scale method was used. The pupils rated the

teacher not just as observers of, but as participants in the lesson under study. The aim was to obtain the pupils' perceptions of the style of their teachers. This judgment was formed over a long period of time, not just during brief visits of a research observer. It also involved their feelings and attitudes, not just the cognitive components of behavior. The instrument used was the Student Perception of Teacher Style (SPOTS) (Tuckman, 1970). The instrument is described by Steinbrink in an article in this volume. It also appears as Appendix A.

Research Design

Geography is an optional subject available to New Zealand high school pupils in Forms 5, 6, and 7, i.e., 15, 16, and 17 year olds respectively. At each form level the pupils sit a national external examination and therefore work on a common syllabus. The content covered in geography courses throughout New Zealand is therefore similar, so that differences between classes were mainly in teaching-learning behaviours.

The SPOTS scale was administered to a total of 610 students in 28 Form 5 and 6 classes. Eighteen teachers taught the 28 classes. These classes formed the following research groups:

1. Geography Classes: A group of 20 geography classes at Form 5 and 6 level comprising 455 students taught by 10 different teachers.
2. Form 5 and Form 6 Geography Classes: Two comparison groups consisting of 10 Form 5 classes studying the School Certificate and 10 Form 6 classes studying the University Entrance Syllabus. As the syllabus used at Form 5 level is much more definitive and restrictive than that at Form 6 level it was desirable to find out if syllabus structure made any significant difference to teacher style and behavior.
3. Science Classes: For comparison purposes the scale was administered to 155 science students in eight classes at Forms 5 and 6 level each taught by a different teacher. The aim was to find out if there were any significant differences between the behaviour of science and geography teachers and if so to identify the different components of behaviour.

The Sample

From a list of the 85 state secondary schools in the New Zealand Southern Education Region a sample of 10 schools was selected as representative of geographic area, size and school type. It was not possible to get a random sample of teachers from such a small group, so it was decided to select them all from one category: the very competent, based upon the assessment of principals' and inspectors'. Classes chosen within

each school were, with one exception, unstreamed and therefore comprised a normal I.Q. distribution. The ratio of males to females was 1:1.

Analysis of Data

For each of the 28 classes of students an average across all variables on the SPOTS scale and across all student raters yielded a mean score indicating the degree to which teachers were directive or non-directive (Table 1).

The average New Zealand geography teacher emerged from the survey as a serious, directive type of person maintaining a formal relationship with his students. His role was perceived as that of structuring and planning course work and class activities with an emphasis on the acquisition of knowledge. Little time was devoted to informal work or group activities which would develop social skills. It was significant that on three of the items the mean score lay almost two points towards the very directive end of the scale (Table 1). These were:

- 1) Variable 2 which measured the degree of rigid structuring of individual and class activities.
- 2) Variable 7 which dealt with the degree of formal relationship with students.
- 3) Variable 11 which concerned the maintenance of a formal classroom atmosphere.

Despite his formal managerial manner, however, the teacher was perceived by his pupils as encouraging them to develop their own ideas and to question the statements made by him or presented in textbooks. The survey thus represented the geography classroom as a formally disciplined situation within which stimulating cognitive interaction takes place. However, pupils perceived that the teachers' anxiety about School Certificate and University Entrance resulted in frequent use of the threat of the final examination (variable 9) to encourage or cajole them to work.

Factor Analysis

Responses to the 17 variables on the SPOTS scale were submitted to factor analysis. The factor analysis procedure grouped variables upon the commonality of relationships between subjects for those particular variables. Cultural bias might place a particular variable in one mode in one setting, but in a different mode in another setting. This suggested that the scale was not culture free, and must be evaluated in terms of the setting in which it is used.

The variables on the SPOTS emerged as three factors, identified as cognitive orientation (Factor 1), interaction mode (Factor 2), and control mode (Factor 3) (Table 2).

The Student's t test was used to analyze individual variables on the SPOTS and factor scores to detect significant differences between groups.

Cognitive Orientation

The cognitive orientation factor which concerned the handling of the content of New Zealand geography lessons suggested that teachers were somewhat non-directive. Pupils perceived them as concerned with getting ideas across, rather than with teaching facts (variable 1). They felt free to ask their teachers questions and to disagree with their statements made in class. Teachers were not perceived to be dominated by the textbooks. They usually gave another point of view in addition to that provided in the book (variable 6). These data reflected two conditions in secondary geography instruction in New Zealand:

- 1) The emphasis of the syllabuses is on major geographic concepts with content options from which the ideas can be discovered.
- 2) The training which New Zealand teachers receive first at universities and then at teachers colleges is efficient. At both institutions geography is a major field of study.

In each case, the individual variables in this factor were above mid-scale (5). This suggested an overall tendency for non-directive behavior in the cognitive orientation of teachers.

Interaction Mode

This factor included those formal and informal interactions between teacher and pupil in the geography classroom. Students perceived the New Zealand geography teacher as maintaining a formal classroom atmosphere. The teacher was perceived in the role of a teacher rather than a friend (variable 13), his predominant interest was in the subject matter taught. He seldom encouraged discussion of matters other than geography. Humor was not a characteristic component of geography lessons, although an analogy or joke was used on rare occasions to get a point across.

Control Mode

This factor consisted of those variables which dealt with classroom control and structuring of activities. New Zealand geography teachers were perceived as very directive on this factor. On variable 2, for example, the mean score of 3.4 (Table 1) suggested that teachers were perceived as directive. The students perceived teachers as telling them what to do most of the time; giving them little opportunity to make decisions on their own. All students in the class were usually on the

same task; little time was spent on independent work or small group assignments. Similar perceptions were recorded on variable 11 which had a mean score of 2.8, also suggesting teacher directiveness. This behaviour might be explained by the anxiety teachers had exhibited about examinations. Students recorded that "the teacher spends a lot of time telling you about tests and grades" (variable 9). The School Certificate and University Entrance examination syllabuses seemed to strongly influence the New Zealand geography teachers' behaviour. All pupils were probably given the same tasks with little choice for individual research offered, because they all have the same nationally set examination to pass. The teacher was perceived to employ very formal control in giving a high priority to such routine tasks as checking absences. The teacher was considered by the students as aloof and they were afraid to tell him when they were angry with him. The data suggested that little emphasis was placed on the development of group processes or skills involved in geographic modes of inquiry.

Differences Between Form 5 and Form 6 Geography Teachers

The Student's *t* test was used to analyse differences between the SPOTS responses on each of the 17 variables (Table 3). Significant differences between Forms 5 and 6 were observed on variables 1, 3, 4, 5, 8, 9, 13 and 15. Form 6 teachers were perceived by the students as significantly less directive on those components of behaviour. These findings were confirmed when analysis of variance was carried out on the factor scores (Table 4). On all three factors, teachers were perceived as less directive at Form 6 level but the difference was particularly marked on the cognitive orientation component. Students rated their Form 6 teachers as more interested in developing ideas and getting them to think for themselves. Form 5 teachers were more concerned with teaching facts. Form 6 students felt much freer to discuss and argue about ideas in class. They noted that their teachers were more friendly, informal, relaxed, and used humour more frequently. More effort was made, they perceived, to relate geography to other subjects. Homework in Form 6 tended to take the form of long term independent research projects rather than the daily uniform fact-finding assignments characteristic of Form 5. Less time was spent on stressing marks, tests and the final examination.

The same group of teachers taught at Forms 5 and 6. It was interesting to the researcher that the behaviours of the same teachers changed so markedly in different form levels. Two factors could account for this difference: the age differences of the pupils or the differences between the syllabuses. The difference in content orientation was most marked. The data suggested that the nature of the syllabus was the major influence on teacher behaviour. It also seemed that the three components of teacher behaviour were closely inter-related. Changing the cognitive orientation might also alter the interaction and control modes of behaviour.

Differences Between Geography and Science Teachers

The Student's *t* test was used to analyse differences between SPOTS responses for each of the 17 variables for geography and science teachers. Significant differences between geography and science teachers were observed in variables 2, 6, 8, 10, 11, 16, and 17 (Table 5). Factor scores for these groups were analyzed using Analysis of Variance procedures. Analyses exhibited a significant difference between teachers of the two subjects in cognitive orientation and the interaction mode. Science teachers were less directive in both these areas (Table 6). This was probably due to the greater emphasis placed on the scientific method and discovery approaches to learning in science. Experimental laboratory work is an integral part of science lessons, but does not appear to play an important role in geography lessons. However, despite the amount of experimental work that science classes carried out, teachers tended to base opinions more closely on what the book said than was the case with geography teachers. This was suggested by the responses to variable 6 (Table 5) with a mean of 4.96 for science teachers and 4.37 for geography teachers. It seemed that science classes carried out experimental work to show that the opinions expressed in the textbooks were right while geography teachers challenged and encouraged pupils to question opinions in textbooks, but did not carry out experimental work to produce evidence for their doubts.

On the interaction mode, the science teachers were perceived as less directive than geography teachers (Table 6). This was probably due to the greater freedom involved in laboratory work as compared with the traditional classroom lessons. The latter seemed to be more characteristic of geography teaching.

No significant difference was observed between geography and science teachers on the control mode. The data suggested that both groups of teachers emphasized similar kinds of requirements regarding classroom behaviour.

The data suggested that a major difference between geography and science in secondary schools was that science teachers were concerned with developing the procedural and process skills involved in scientific inquiry, but did not rely greatly on the results of this experimental work to develop the knowledge of pupils. Geography teachers, on the other hand, were more concerned with challenging the validity of the knowledge provided, but were not very concerned about the procedural skills involved in testing these conclusions.

On the basis of data collected, the author concluded that teachers did differ in their behavioural style from subject to subject. In some subjects such as science, skills tended to be stressed and informal relationships with pupils developed. In other subjects, such as geography, more formal relationships were established and firmer discipline used as pupils were taught

to question opinions and challenge authorities in a logically structured manner.

If these conclusions are valid, then it is possible that there is a justification for continuing to teach separate disciplines in secondary schools. Each subject teacher provides pupils with a somewhat different model for learning. Some stress formal structured approaches, others freer discovery type learning. Some stress skills, others stress concepts. From a range of teaching styles pupils learn to accept those components which suit his or her own particular needs and abilities.

Implications for the Training of Geography Teachers

The *a priori* expectation that geography teachers involved pupils in independent scientific research into the environment was not supported by the data. Current teaching procedures as perceived by pupils were expository, directive and classroom-bound. These procedures cultivated a passive mastery of ideas instead of their active discovery, a tendency to follow teacher-made recipes in solving problems instead of analyzing problems and searching for generalizations to organize facts and to approach problems.

Geography classrooms did not seem to be achieving the objectives set out in secondary school syllabuses. These included:

- 1) Geography....aims to encourage the use of scientific methods in the subject and to give a sense of problem to the studies undertaken. (University Bursaries Examination Preamble--U.E. Board, 1974).
- 2) the programme should include measurement, collection and analysis of data to enable the pupil to gain an understanding of the environment and man's use of it. (University Entrance Examination Prescription - U.E. Board, 1974).

The data further suggested that the teaching of geography teachers should place more emphasis on methods of deformatising the classroom by:

- 1) introducing more individual research assignments;
- 2) encouraging greater use of the scientific method and inquiry approaches;
- 3) using more fieldwork and outdoor activities; and
- 4) changing the role of the teacher from that of director to that of facilitator.

Implications for the Continuing Education of Teachers

An unexpected aspect of the research was the enthusiasm created amongst the teachers and pupils involved in the SPOTS test. Both teachers and pupils became intensely interested in discussing teaching techniques and learning activities. Teachers were surprised at the perceptive way in which pupils could evaluate the type of activities used in the classroom. For many of these teachers it was the first time in up to twenty years teaching, that they had stopped to think about, let alone discuss with pupils, their teaching methods. Other teachers, not involved in the project, also became interested and asked for copies of the test to use with their classes. From this reaction it would appear that the use of rating scales of student perception could well be an important method of continuing education for teachers. It is probably more relevant to teachers than many in-services courses of the conventional style.

Implications for Classroom Style

The major objectives of secondary education in New Zealand have been summed up as developing in students:

- 1) the urge to enquire;
- 2) concern for others; and
- 3) self respect (N.Z.P.P.T.A., Education in Change, 1969).

If geography is to contribute to these objectives there should be greater opportunity made for pupils to:

- 1) make their own decisions;
- 2) make and learn from mistakes; and
- 3) develop social skills through group activities.

The anxiety of teachers to cover the School Certificate of the U. E. Syllabus is at present depriving pupils of the opportunity of developing personal autonomy and responsibility. The school environment, of which the geography classroom is a part, must foster independence from teachers, if pupils are to acquire "that degree of freedom which students need to learn to handle the independence of adult life" (E.C.D. Report "Organization and Administration of Education," p. 56).

Implications for Curriculum Planners

The effect of curriculum design on teaching strategies was quite evident from the data. The use of national syllabuses examined by national examinations results in the development of a national style of geography teaching. When a syllabus is stated mainly in terms of the content areas to be covered, as in the School Certificate Syllabus, teachers and examiners focus on knowledge as their major objective and students' perceive facts as their goal. When a syllabus includes a definition of

the subject and states the skills involved in it, as in the University Entrance Syllabus, teachers respond with concepts and ideas in geography and complementary interaction and group processes designed to develop concepts and skills of enquiry.

Summary

The aim of this research exercise was twofold. First, it was designed to find out if teachers of a particular subject, in this case geography, have a distinctive style of classroom behaviour and secondly, to identify the components which make them different. On the basis of the sample tested, it was concluded that geography teachers did have a distinctive style in tending to be directive and formal in teaching procedures, but they were more permissive in verbal interactions in the cognitive domain.

It seems that the major change to have taken place in New Zealand secondary schools in recent years is in the handling of content. Teachers are training pupils to use knowledge to develop generalizations and concepts. Progress has been made; there has been a move from teaching content for the sake of acquiring knowledge to teaching content to develop cognitive skills. On the cognitive orientation factor and interaction mode there is need for a greater emphasis on developing procedural and process skills through more variety in teaching-learning activities. On the control mode, a more informal approach and less anxiety about examinations would probably improve perceptions of the teachers by the pupils.

Although some of the directiveness of geography teachers could be attributed to external examinations, it seemed as though the nature of the syllabuses was a major determinant of teaching behaviour. The difference detected between geography and science teachers might have resulted from different types of syllabuses rather than from inherent differences between the subjects. Before definitive conclusions can be drawn from this research more studies are required on the same teachers working on different syllabuses and the same teachers working on different subjects.

TABLE 1

COMBINED F5 AND F6 GEOGRAPHY CLASSES
MEANS AND STANDARD DEVIATIONS FOR THE SAMPLE

Item	Mean	Standard Deviation
1	5.66	1.35
2	3.41	1.63
3	4.86	1.77
4	6.00	1.77
5	5.71	1.70
6	5.32	1.48
7	3.77	1.92
8	4.65	1.13
9	4.24	1.47
10	5.47	1.35
11	2.77	1.95
12	4.13	2.08
13	4.17	1.49
14	5.84	2.77
15	4.53	1.83
16	4.14	1.67
17	6.26	2.27

TABLE 2

FACTOR GROUPINGS FOR NEW ZEALAND GEOGRAPHY TEACHERS

Factor	Variable
Cognitive Orientation	1, 4, 5, 6, 10
Interaction Mode	3, 7, 8, 13, 17
Control Mode	2, 9, 11, 12, 14, 15, 16

TABLE 3
MEANS AND STANDARD DEVIATIONS FOR GEOGRAPHY
FORM 5 AND GEOGRAPHY FORM 6 TEACHERS

Variable	Form 5		Form 6	
	Mean	SD	Mean	SD
1	5.55	1.41	5.82*	1.30
2	3.32	1.74	3.52	1.45
3	4.65	1.85	5.07*	1.62
4	5.72	1.77	6.44*	1.63
5	5.50	1.71	6.06*	1.63
6	5.29	1.50	5.47	1.36
7	3.67	2.06	3.92	1.75
8	4.44	1.21	4.90*	1.00
9	4.15	1.49	4.43*	1.38
10	5.27	1.38	5.50	1.29
11	2.72	2.00	2.84	1.90
12	4.04	2.19	4.25	1.89
13	3.98	1.51	4.45*	1.39
14	5.65	2.90	6.07	2.64
15	3.88	1.74	5.46*	1.54
16	4.12	1.57	4.18	1.71
17	6.32	2.22	6.20	2.35

*Significant difference (prob. $\leq .05$) toward non-directive teacher style in favor of this group.

TABLE 4
MEANS AND STANDARD DEVIATIONS FOR FACTOR SCORES:
FORM 5 AND FORM 6 GEOGRAPHY TEACHERS

Factor	Form 5		Form 6	
	Mean	SD	Mean	SD
Cognitive Orientation	23.98	6.02	25.29*	6.09
Interaction Mode	23.07	5.32	24.53*	4.95
Control Mode	31.41	4.78	34.74*	4.44

*Significant Difference (prob. $\leq .05$) toward non-directive teacher style in favor of this group.

TABLE 5

MEANS AND STANDARD DEVIATIONS FOR GEOGRAPHY AND SCIENCE TEACHERS

Variable	Geography		Science	
	Mean	SD	Mean	SD
1	5.67	1.37	5.55	1.56
2	3.41	1.62	4.27*	2.05
3	4.84	1.76	4.88	1.90
4	6.04	1.75	6.14	1.89
5	5.75	1.70	5.86	1.93
6	5.37*	1.44	4.96	1.74
7	3.78	1.93	3.70	1.93
8	4.64	1.45	4.88*	1.19
9	4.27	1.45	4.44	1.73
10	5.48*	1.34	5.17	1.60
11	2.77	1.95	3.48*	2.42
12	4.13	2.07	4.19	1.95
13	4.19	1.47	4.39	1.61
14	5.83	2.80	5.70	2.75
15	4.57	1.83	4.67	2.17
16	4.15	1.63	5.09*	1.99
17	6.27	2.28	6.97*	2.05

*Significant difference (prob. $\leq .05$) toward non-directive teacher style in favor of this group.

TABLE 6

MEANS AND STANDARD DEVIATIONS FOR FACTOR SCORES OF GEOGRAPHY AND SCIENCE TEACHERS

Factor	Geography Teacher		Science Teacher	
	Mean	SD	Mean	SD
Cognitive Orientation	24.56	6.07	27.16*	7.54
Interaction Mode	23.71	5.21	24.81*	5.49
Control Mode	32.87	4.92	32.34	6.21

* Significant difference (prob. $\leq .05$) toward non-directive teacher style in favor of this group.

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STUDENT PERCEPTION OF TEACHER STYLE: CYPRUS

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ABSTRACT

The Student Perception of Teacher Style was administered to the students of eleven secondary geography teachers at a Service children's school in Western Cyprus. The data suggested that teachers of above average students tended to be more directive in their instructional style than were teachers of average and below average students. The teachers preoccupation with content and covering the syllabus were offered as explanations. The general dimension of teacher directiveness was divided into cognitive orientation, interaction mode, and control mode for further analysis. These data suggested general differences in the classroom style of teachers based upon class ability, sex and age of teacher.

PERCEPTION PAR LES ÉLÈVES DU MODE D'ENSEIGNEMENT À CHYPRE:

R. Dutton
Chypre

RÉSUMÉ

Le test de perception par les élèves du mode d'enseignement fut donné aux élèves de onze professeurs de géographie des écoles secondaires, à une école pour enfants des familles de militaires à l'ouest de Chypre les renseignements obtenus suggèrent que les enseignants d'élèves au-dessus de la moyenne ont tendance à être plus directifs dans leur mode d'enseignement que les enseignants d'élèves moyens ou au-dessous de la moyenne.

La préoccupation des enseignants au sujet de leur responsabilité envers le programme à suivre est une explication possible. L'envergure du contrôle de l'élève par l'enseignant a pu être divisée en orientation des connaissances, méthode d'action réciproque et méthode de contrôle afin d'être analysée plus tard. Ces renseignements suggèrent certaines différences d'ordre général dans le mode d'enseignement fondées sur le niveau de la classe, le sexe et l'âge de l'enseignant.

ВОСПРИЯТИЕ СТУДЕНТАМИ СТИЛЯ ПРЕПОДАВАНИЯ: КИПР

Р. Даттон
Кипр

ВЫДЕРЖКА

Вопросники "SPOTS" (Восприятие студентами стиля преподавания) были заполнены учениками одиннадцати учителей географии в средней школе для детей британских военнослужащих на западном Кипре. Результаты указывают на то, что учителя учеников со способностями выше средних, более директивны в своих методах преподавания, чем учителя учеников со способностями средними и ниже средних. Учителя объясняют это своей озабоченностью о выполнении полной программы курса. Общее применение директивности преподавателем может быть подразделено на познавательную ориентацию, способ взаимодействия и способ контроля для дальнейшего анализа. Эти данные указывают на общие различия в манере преподавания учителей, в зависимости от способностей класса, а также пола и возраста учителя.

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Student Perception of Teacher Style: Cyprus

R. Dutton
Cyprus

Generally, very little fundamental research in geographic education has been undertaken and despite the obvious importance of the relationship between the teacher and the taught, we know little for example, concerning the effect of teacher directiveness upon learning in geography. Do children learn more effectively from a formal, closely structured and directive class-situation than from one in which more open ended, individual and group oriented activities are the norm? The investigator suspects that the teacher who insists upon a classroom which is like a Trappist monastery will effect an atmosphere of industry and little else. The complete egalitarian, on the other hand, who views noise, movement and activity as essential for a learning recipe may be equally deluded. Between these extreme styles, there are lesser degrees of directiveness which effect pupil motivation and learning.

In primary schools where children spend the greater part of each day with one teacher, the quality of the teacher pupil relationship is of paramount importance and has the recognition it deserves. If Teacher X and the class of thirty 8-year olds do not get along, they are doomed to a miserable and unrewarding school year. Such a situation is rare because the primary teacher has been selected and trained in the dual role of leader and educator. Also, the age levels of primary children, characterized by spontaneous curiosity, awakening interests, enjoyment of corporate activities and eagerness for recognition, operate in favour of the teacher.

At the secondary level, circumstances can conspire against non-directive modes of teaching. The teachers' pre-service preparation was focused upon subject specialization. They expect to be an instructor, rather than a leader or educator. If the school is a conventional one, with departmental specialization, the newly appointed teacher of geography will find this expectation fulfilled. The demands of the school are less diffuse than at primary levels and concentrates upon contributions to the department. The geographer is more concerned with the teaching of geography and the communication of his own cluster of subject skills, appreciations, attitudes and feelings than with broader educational aims and considerations. If he is a graduate specialist, the tendency is likely to be stronger. The danger then, is that the specialist may view his function as a dispenser of information, rather than an arranger of learning situations. Thus, the geography specialist may conscientiously

The author expresses his appreciation to J. Stoltman for assistance in drafting various parts of this report.

meet the accepted requirements for lessons, e.g., stated objectives and materials, and yet may, as Hones (1972) points out, neglect the problem of motivation, the essential element of the classroom.

The specialist's tendencies towards directive teaching are reinforced by the circumstances prevailing in schools. At the secondary level in British schools, classes and teachers group, move and re-group throughout the day according to the dictates of the bell which punctuates timetable sessions. The capsulated nature of the lessons, the constant pressure of time and the need to get on with the syllabus, together with lower levels of pupil interest make directive teaching and a formal, no-nonsense, authoritarian style, the easiest one for the secondary teacher to adopt. Such a style might be dictated by the general tone of the school and so, would be difficult to resist. Thus, the newly recruited teacher is pressured to conform with the school's prevailing style. Apart from the effects of general style within a school, the investigator can also expect regional norms, as well as effects of the general education system to influence the teacher's style.

An operational definition of directive teaching is offered by Tuckman (1970), who lists the following characteristics.

- 1) Formal planning and structuring of course work.
- 2) Minimization of informal work or small group work.
- 3) Rigid structuring of such small group work as is employed.
- 4) Rigid structuring of individual and class activities.
- 5) Emphasis on factual knowledge or knowledge derived from sources of authority, e.g., books, school administrators.
- 6) Use of absolute and justifiable punishment.
- 7) Minimization of the opportunity to make and to learn from mistakes.
- 8) Maintenance of formal relationship with students.
- 9) Assumption of total responsibility for grades.
- 10) Maintenance of formal classroom atmosphere.

Although this definition suggests that directive teaching is a counter-productive style, it was stated at the outset that little is known about the effects of teacher directiveness. Studies by Connors (1960), Carmichael (1966) and Crabtree (1967) have demonstrated investigation-oriented methods to be superior to directive, expository teaching. Moreover, studies such as the ones by Shafer (1965), Usian (1965), and Ryan (1967) encouraged the use of programmed materials and a variety of audio-visual aids. Much more needs to be known regarding teaching style and, specifically, its implications for geography teacher training, classroom behavior and curriculum materials.

Research Instrument and Design

The research instrument used in the data collection was the Student Perception of Teacher Style, SPOTS (Tuckman, 1970). That instrument was described in detail by Steinbrink in an article included in this volume. For research purposes, the SPOTS was used in the form in which it appears as Appendix A.

The research design was a comparative survey. Existing classrooms were selected and the data collection procedure was imposed. Such a design was acceptable for the descriptive type of research undertaken. The collected data represented the classroom environment as it existed at that point in time. The research was conducted in classrooms where instruction was underway. The research did not create an experimental condition or disrupt normal procedures. Neither the teachers nor the students were looking for or expecting any kind of special situation prior to the data collection. The instructional style probably reflected very closely usual classroom instruction for the sample.

Student and Teacher Samples

The populations used were studying and teaching in a Comprehensive secondary school for Service children in Western Cyprus. Service schools are staffed by qualified British teachers who serve on contract and are appointed or seconded in the United Kingdom. The teachers are therefore a mobile group coming from and returning to the teaching force in Britain; their professional training and background is shared with British teachers generally. Middle schools have been introduced in some overseas stations, but Comprehensives for 11-18 year olds predominate. The particular school used could therefore be regarded as representative of Service schools generally. At the time of the study, there were over 1500 students ranging in age from 11+ to 18+ years. As in all Service schools, there was a high turnover rate. Children moved according to their fathers' postings and since these occurred on the average every two and a half years, this school had an annual turnover of some 40% of its roll.

The members of the Service children community expected to accompany their parents on postings within the United Kingdom, and to overseas stations where permitted. In some areas of Britain, such children constituted a significant proportion of the local school populations. Overseas, there were many thousand Service children accommodated in schools provided by the Service Children's Education Authority (S.C.E.A.).

The children represented a unique group and, one would assume, their nomadic life would be markedly different from that of their civilian and relatively stable counterparts in mainstream education. Other things being equal, commonsense, supported by available evidence, could lead to the conclusion that their frequent changes of home, school and neighborhood constitute an

educational risk. Regular movement handicaps learning directly by dislocating study and indirectly by impairing personality and social adjustment. This viewpoint leads many Service parents to emphasize educational stability by placing their children in boarding schools.

There is, however, another viewpoint. Negative effects of mobility may be neutralized by the excellent provisions of Service schools. This view contends that a geographically stable educational history is not necessarily free from disruptions, e.g., the effects of poor buildings, an itinerant staff, weak discipline, low staffing ratios, or an ill organized administration. Also there may be spin-off benefits from frequent geographic relocation. Such speculation is supported in research by Whalen and Fried (1973). They demonstrated that the interests and attitudes of higher intelligence students were stimulated by frequent geographic relocation. One headmaster (Bettsworth, 1974), with long experience of Service children, suggested that such children have a broader perspective, a more open disposition, closer peer relationships and a greater maturity and independence of approach to learning and school in general.

In this school there were 104 teachers, 11 of whom taught Geography for all, or part, of their timetabled commitment. The subject was taught as part of the compulsory curriculum which operated for the first three years; three 40 minute periods per week were given to the subject for each class. In the upper school, subject options operated. Although Geography was apparently popular, the total number of pupils studying the subject in any of the year levels was much smaller than in the earlier levels.

Sampling Technique

The author was a member of the School staff; this accounted for the selection of the particular Service school. To some extent the sampling technique was based upon similar arbitrary and subjective considerations. The SPOTS scale was administered at mid-school level to students of 13-14 years of age in order to obtain maximum involvement of all the Geography teachers and so that ratings could be made by students of comparable age. This choice prevented any disruptions of teaching programmes linked to public examinations. At the third year level, it was thought that children would be mature enough to cope with the requirements of the exercise, whereas younger students might have difficulty in making use of the 9-point scale. However, those students in the lowest ability probably experienced some difficulty. The sampling approach made it possible for all eleven teachers to be rated by classes which were of comparable age, which covered the whole spectrum of ability at this level and which were of sufficient maturity for the requirements of the technique used.

Data Analysis

Means and standard deviations for each of the 17 variables on the SPOTS (N=172) are shown in tabular form (Table 1). They range from a high of 5.85 on variable 17 to a low of 3.09 on variable 7. In general, the range of means and standard deviations suggests varying degrees of teacher directiveness-non-directiveness as perceived by the students. Actual differences were analyzed using other statistical techniques.

Frequency counts of responses and percentage of students responding provided additional data not revealed by the means and standard deviations (Table 2). These data displayed the clustering which occurred with the response patterns and explained somewhat the standard deviation (Table 1). Standard deviation suggested the agreement which existed among respondents regarding that particular classroom trait in the teacher sample.

Analysis by Ability Grouping, Teacher Sex and Age

The sample of teachers and students was so constituted that several classifications could be made for analyses purposes. The first was class type, since the separate classes were grouped as above average, average, and below average on school organization criteria. The criteria for those divisions were related to performance on verbal reasoning tests administered at eleven years of age. The second classification was teacher sex. The third classification was the age of the teacher. Those teachers 29 years of age or less were placed in one category, while those teachers 30 years of age or older were placed in a second category for comparison analysis.

Analysis by Ability Grouping

The students in the sample were classified by group according to ability. The means for three groups on each of the 17 variables were then tested for significant differences using the Student's *t* technique (Table 3). The data suggested several conditions regarding differences in student perception of teacher style in different ability groups. There were seven significant differences (probability $\leq .05$) between the above average group and the below average group. All the differences suggested a less directive instructional style by the teachers of the below average groups. Several observations of the classroom setting helped explain these differences.

First, the below average classes (N = 4) averaged 8 students each. The above average classes (N = 4) averaged 19.5 students, while the average classes (N = 3) averaged 20.6 students per class. Therefore, the less directive teacher style classrooms had relatively small groups of students.

Second, the teachers in the below average classrooms were somewhat different in their personalities and approaches to

instruction. Those differences, along with the dynamics of the smaller classes, probably attributed to distinct behaviors by the teachers. The following descriptions of the teachers for each group exemplified that point.

Below average classes:

- Teacher 1 - very quiet in manner, but well liked by students;
- Teacher 2 - remedial teacher, understanding;
- Teacher 3 - very outward going and friendly;
- Teacher 4 - good sense of humor, though could be no nonsense, if necessary.

Average classes:

- Teacher 1 - fussy type, favors chalk and talk;
- Teacher 2 - priority clearly work, uses talk and organized tasks;
- Teacher 3 - well trained and personally organized.

Above average classes:

- Teacher 1 - a rather drab type, unlikely to generate much enthusiasm;
- Teacher 2 - genial type, well organized as regards teaching situation, friendly;
- Teacher 3 - well organized, no nonsense teacher;
- Teacher 4 - very calm and mature.

The descriptions suggest differences between teacher personalities by group. The teachers of the below average classes appeared to be pacing their approach to the needs of the below average student. Their instructional styles were perceived by the students as less directive than were the styles of other teachers in the sample.

Analysis by Teacher's Sex

The students in the sample were classified according to the sex of the teacher. The means for each group were analyzed for significant differences using the Student's *t* technique (Table 4). There were six significant differences (probability $\leq .05$) between males and females on the 17 variables. Five of the differences suggest that males were less directive. A closer inspection of the variables revealed additional data regarding the trends.

Male teachers were perceived by their students as significantly less directive than females on variables 2, 7, 8, 11 and 16 (Appendix A). In summary, the male teachers:

- 1) provided more freedom regarding the structuring of activities in the classroom;
- 2) were less directive regarding formality of title;

- 3) used humor and jokes more frequently;
- 4) were less concerned about keeping all students on the same task; and
- 5) provided more opportunities for group and committee work.

The female teachers on the other hand, offered students greater choice in deciding who they wished to work with on tasks (variable 17), while allowing fewer opportunities for such work (variable 16).

It should be noted that when significant differences were observed, they were generally toward the directive end of the scale, with the exception of variable 17. Eight of the variables which showed no significant differences between the groups had ratings which clustered toward the midpoint on the scale. It was concluded that, despite the differences suggesting males were less directive, the mean values alone suggested that both groups used a relatively directive classroom style.

Analysis By Teacher's Age

The second teacher variable analyzed was age. The age of 30 years was arbitrarily used as the dividing point between the two groups. It was believed that, by age 30, the teacher could have had between four to eight years of classroom experience. Over age 30, the experience could range from nine years to retirement. None of the teachers in the sample were nearing retirement, although the 30 years in age evenly divided the sample for analysis purposes.

There were three significant differences between the age groups on the seventeen variables. They were on variables 5, 11, and 17. On two variables, numbers 5 and 17, the younger teachers were perceived as significantly less directive than were the older teachers. The older teachers were perceived as less directive on variable 5 (Table 5).

In short, younger teachers tended to permit discussion on items which teachers and students did not agree upon. Older teachers were not inclined to permit students to argue their own points of view. Younger teachers were perceived as permitting student selection of work study partners (variable 17) while older teachers permitted such student selection only some of the time.

The teachers 30 years of age and older were significantly less directive on variable eleven. The data suggested that older teachers had a more varied set of tasks and activities for students to complete during the course of the study. Older teachers, and presumably more experienced, tended to be less directive by not having all students do exactly the same thing during class.

The cumulative response data ($N = 172$) were submitted to a factor analysis. The factor analysis procedure grouped variables upon the commonality of relationships between subjects for those particular variables. Insofar as differences appeared in the factor loadings between studies in this monograph, they were a statistical deduction reflecting the interaction of culture within the response patterns. Cultural bias might place a particular variable in one mode in one setting, but in a different mode in another setting. This suggested that the scale was not culture free, and must be evaluated in terms of the setting in which it was used. Fifteen of the seventeen variables grouped into three factors, identified as: 1) cognitive orientation, 2) interaction mode, and 3) control mode (Table 6). The factor scores reflected the combined scores for the variables which emerged as the factor. The matrix was rotated. The composite factor scores were then analyzed to determine any significant differences between groups. The Student's t test was used to compare groups (Table 7).

Two significant differences were suggested by the analysis. First, above average and average groups perceived their teachers' devotion to cognitive orientation differently. Average students perceived their teachers as less directive in this area than did above average students. Second, above average students perceived their teachers as more directive in the interaction mode than did below average students.

Factor composites were also analyzed to determine differences between males and females in the teacher sample (Table 8).

One significant difference was revealed in the analysis by sex. It was on Factor 2, the interaction mode. Those data suggested that male teachers were perceived as significantly less directive in classroom interaction than were female teachers.

A third test of factor composites was used to determine significant differences based upon the age of the teachers in the sample (Table 9).

One significant difference between teachers of different ages in the sample was revealed. It was with Factor 1, Cognitive Orientation. The data suggested that teachers less than 30 years of age were significantly less directive on this factor than were teachers 30 years of age or older.

Discussion of Analysis & Conclusions

It was argued at the outset that the circumstances typical of secondary schools might encourage tendencies within the specialist teacher toward directive modes of teaching. The

effectiveness of directive versus non-directive teaching was a separate issue and inquiry in this direction depended upon the ability of a researcher to employ a valid and reliable measure of teacher directiveness. One of the outcomes of the present study was that results underlined the value of the SPOTS scale. If, for example, the investigator assumed that observable differences in teaching style existed then he could expect a fair measure of agreement in student perceptions of such differences. Table 1 suggested both the clustering and variability of the responses in this study. These demonstrated the inter-student agreement regarding the directiveness dimension, and pointed to the usefulness of the technique in measuring classroom style, an often ignored or uncontrolled variable in experimental research.

While individual teacher differences were to be expected, it was argued that differences might also be evident in the styles prevailing between different types of schools. Thus, comparative studies of Grammar, Middle and Comprehensive schools might yield interesting results, as might similar studies of day schools and boarding schools. In such a context, Service children's schools offered one particular avenue for the exploration of this hypothesis. This was due to the popular contention among teachers in these Service schools that the children were generally more socially mature than their United Kingdom civilian counterparts and that teacher-pupil relationships were more relaxed and pleasant. One could expect this to be reflected in a comparison against State schools in the United Kingdom.

By itself, the design of the study was a comparative survey. Among the most interesting of the differences among the teachers of this particular geography department was that the young, under 30 years of age, teachers, males and females, were perceived as being less directive concerning classroom discussion, selection of work partners, work content and evaluation. This could well reflect their more recent graduation from teachers' training programmes which generally encourage informal classroom situations and the promotion of individual responsibility for progress. However, it takes some time for the new recruit to the profession to build up the materials, exercises and general software necessary for individualized or group orientated assignments. Class directed activities are an easier form of organization and this may explain why older teachers emerged as less directive on variable eleven.

The above average students' perception of their teachers as more directive concerning cognitive orientation, interaction, and control, could well reflect attitudes of greater urgency on the part of the teachers towards these brighter students. One of the arguments usually raised against the practice of streaming is that teachers of lower streams approach the children with lower expectations and can easily become satisfied with mediocre progress. The teacher given responsibility for the

class of brighter students is more inclined to believe that his charges are less in need of informal progressive methods. Moreover, the students are expected to demonstrate good progress in learning and so encourages directive, expository styles of teaching.

Finally, it was encouraging to see from the results that the lower ability groups seemed in fact to be approached by their teachers with instructional styles likely to reflect an instructional approach paced to the needs of the children. The seven significant differences between the below average group and the above average group all suggested less directive instructional styles on the part of the remedial teachers. The geography teachers concerned with the below average classes were remedial specialists and took the lowest groups for the most general subjects. The small size of the classes and the greater amount of time spent together in the course of a week both might account for the less directive teaching styles perceived by the below average classes. The variables on which these differences were revealed suggested that the lack of directiveness pointed more towards a friendly class atmosphere and the use of small group and individualized assignments, rather than a lack of concern or an urgency on the part of the teachers.

From the researcher's experience in administering the SPOTS scale with the group of British children involved in this study, a revised version for future use with such children might be desirable. Minor revisions should be directed at making the scale less ambiguous, e.g., replacing American terms such as student, principal, grades, and takes attendance, by the more familiar British equivalents, pupil, headmaster, marks and call the register. In addition, some introduction to the response requirements would be valuable. A preface which presented some practice items involving the same 9-point rating requirements for easily grasped variables would be of particular value for children of lower ability. The research study was small scale, but demonstrates the potential for use of the SPOTS in research concerned with geographic education, and in some of its significant findings, it serves to support observations concerning teaching styles.

TABLE 1
CYPRUS: MEANS AND STANDARD DEVIATIONS

Variable	Means	Standard Deviation
1	5.78	2.18
2	3.80	2.25
3	5.06	2.11
4	5.63	1.88
5	5.42	2.05
6	5.34	1.96
7	3.10	1.85
8	4.46	1.59
9	4.75	1.71
10	5.43	2.02
11	3.36	2.37
12	3.97	2.05
13	2.84	1.76
14	5.63	2.35
15	3.81	1.83
16	3.60	1.85
17	5.86	2.40

TABLE 2
CYPRUS: FREQUENCY COUNTS AND PERCENTAGES

Variable*	1	2	3	4	5	6	7	8	9	
1	6 3.49	14 8.14	6 3.49	23 13.37	27 15.70	14 8.14	41 23.84	27 15.70	14 8.14	**
2	41 23.84	25 14.53	13 7.56	19 11.05	28 16.28	24 13.95	13 7.56	8 4.65	1 0.58	
3	10 5.81	10 5.81	17 9.88	33 19.19	38 22.09	19 11.05	20 11.63	14 8.14	11 6.40	
4	5 2.91	2 1.16	6 3.49	38 22.09	40 23.26	25 14.53	25 14.53	17 9.88	14 8.14	
5	8 4.65	4 2.33	9 5.23	39 22.67	40 23.26	17 9.88	23 13.37	17 9.88	15 8.72	
6	9 5.23	4 2.33	9 5.23	25 14.53	50 29.07	26 15.12	25 14.53	13 7.56	10 5.81	
7	58 33.72	18 10.47	18 10.47	29 16.86	29 16.86	18 10.47	2 1.16	0 0.00	0 0.00	
8	9 5.23	12 6.98	15 8.72	48 27.91	53 30.81	24 13.95	5 2.91	3 1.74	3 1.74	
9	8 4.65	10 5.81	17 9.88	37 21.51	46 26.74	30 17.44	14 8.14	8 4.65	2 1.16	
10	8 4.65	7 4.07	8 4.65	30 17.44	40 23.26	29 16.86	21 12.21	14 8.14	15 8.72	
11	40 23.26	43 25.00	29 22.67	6 3.49	6 3.49	7 4.07	16 9.30	10 5.81	5 2.91	
12	26 15.12	18 10.47	30 17.44	33 19.19	27 15.70	17 9.88	12 6.98	5 2.91	4 2.33	
13	22 12.79	19 11.05	26 15.12	42 24.42	42 24.42	12 6.98	5 2.91	1 0.58	3 1.74	
14	12 6.98	12 6.98	9 5.23	18 10.47	26 15.12	23 13.37	30 17.44	22 12.79	20 11.63	
15	22 12.79	19 11.05	39 22.67	25 14.53	43 25.00	14 8.14	4 2.33	2 1.16	4 2.33	
16	36 20.93	13 7.56	22 12.79	49 28.49	33 19.19	10 5.81	4 2.33	2 1.16	4 1.74	
17	9 5.23	7 4.07	15 8.72	26 15.12	15 8.72	9 5.23	40 23.26	25 14.53	25 14.53	

* N may deviate on some variables due to no response by an individual.

** Figures presented as percentages.

TABLE 3

SUMMARY OF MEANS AND STANDARD DEVIATIONS BY STUDENT ABILITY GROUPS

Variable	Group 1 Above Average		Group 2 Average		Group 3 Below Average	
	Mean	SD	Mean	SD	Mean	SD
1	5.60	2.04	5.82	2.12	6.06	2.61
2	3.99	2.30	3.70	2.31	3.38	2.04
3	4.64 ³	1.87	5.24	2.09	5.66 ¹	2.48
4	5.30 ²	1.82	6.03 ¹	1.92	5.59	1.78
5	5.55	1.78	5.48	2.29	5.00	2.73
6	5.39	1.93	5.55	2.00	4.84	1.87
7	2.76 ³	1.66	3.15	1.90	3.78 ¹	2.06
8	3.99 ^{2,3}	1.46	4.66 ¹	1.43	5.16 ¹	1.82
9	4.65 ³	1.68	4.40 ³	1.43	5.66 ^{1,2}	2.01
10	5.46	1.86	5.34	1.88	5.53	2.65
11	2.97 ³	2.10	3.23 ³	2.31	4.50 ^{1,2}	2.79
12	3.63	2.01	4.13	1.97	4.44	2.23
13	3.49 ³	1.55	3.87	1.98	4.56 ¹	1.50
14	5.30 ²	2.49	6.52 ^{1,3}	2.06	4.81 ²	2.04
15	3.71	1.79	3.86	1.64	4.00	2.29
16	3.22 ³	1.58	3.60 ³	1.85	4.56 ^{1,2}	2.15
17	5.59	2.51	6.29	2.36	5.63	2.15

¹ Significant difference (<.05 probability) between this group and group 1.² Significant difference (<.05 probability) between this group and group 2.³ Significant difference (<.05 probability) between this group and group 3.

TABLE 4
SUMMARY OF MEANS AND STANDARD DEVIATIONS BY SEX OF TEACHER

Variable	Males		Females	
	Mean	SD	Mean	SD
1	5.81	2.40	5.73	1.98
2	4.27*	2.19	3.38	2.24
3	5.33	2.27	4.79	1.91
4	5.71	2.06	5.53	1.68
5	5.50	2.13	5.36	1.96
6	5.42	2.05	5.28	1.86
7	3.55*	1.89	2.67	1.73
8	4.73*	1.71	4.19	1.41
9	4.88	1.93	4.63	1.49
10	5.13	2.28	5.70	1.73
11	3.84*	2.49	2.90	2.17
12	4.01	1.87	3.91	2.21
13	3.90	1.88	3.76	1.62
14	5.50	2.37	5.76	2.34
15	4.05	1.95	3.60	1.70
16	4.04*	1.84	3.21	1.79
17	5.32	2.21	6.33*	2.48

* Significant difference ($<.05$ probability) toward non-directive behavior in favor of this sex.

TABLE 5

SUMMARY OF MEANS AND STANDARD DEVIATIONS BY AGE OF TEACHER

Variable	Less than 30 Years		30 Years & More	
	Mean	SD	Mean	SD
1	5.56	2.15	5.95	2.01
2	4.15	2.12	3.50	2.33
3	4.98	1.63	5.11	2.44
4	5.68	1.69	5.57	2.02
5	5.76*	1.95	5.13	2.08
6	5.53	1.87	5.19	2.01
7	3.04	1.80	3.13	1.91
8	4.41	0.127	4.48	1.81
9	4.68	1.60	4.82	1.82
10	5.70	1.66	5.20	2.27
11	2.85	1.85	3.78*	2.68
12	3.93	2.05	3.99	2.06
13	4.09	1.58	3.60	1.86
14	5.84	2.25	5.46	2.43
15	3.81	1.65	3.82	1.98
16	3.65	1.62	3.57	1.04
17	6.68*	2.23	5.13	2.33

* Significant differences ($\leq .05$ probability) toward non directive behavior in favor of this group.

TABLE 6
FACTOR GROUPINGS FOR CYPRUS DATA

Factor	Variable Number*
1. Cognitive Orientation	1, 2, 3, 6, 8, 9, 11
2. Interaction Mode	5, 12, 15, 16
3. Control Mode	4, 10, 14, 17

*Variables 7 and 13 were deleted from the factor composite since they emerged in none of the three factors at an eigenvalue of 1.00.

TABLE 7
FACTOR SCORES: CLASS TYPE

	Group 1 Above Average		Group 2 Average		Group 3 Below Average	
	Mean	SD	Mean	SD	Mean	SD
Factor 1 Cognitive Orientation	35.95 ²	6.90	38.58 ¹	6.70	37.69	7.64
Factor 2 Interaction Mode	18.53 ³	5.90	19.71	6.24	22.09 ¹	6.75
Factor 3 Control Mode	14.47	3.80	15.65	4.33	15.03	3.80

¹Significant difference ($\leq .05$ probability) between this group and group 1.

²Significant difference ($\leq .05$ probability) between this group and group 2.

³Significant difference ($\leq .05$ probability) between this group and group 3.

TABLE 8
FACTOR SCORES: SEX OF TEACHER

	Males		Females	
	Mean	SD	Mean	SD
Factor 1 Cognitive Orientation	36.78	7.24	37.62	6.86
Factor 2 Interaction Mode	21.52*	6.07	17.88	6.00
Factor 3 Control Mode	15.22	4.10	14.80	3.94

*Significantly different (probability $\leq .05$).

TABLE 9
FACTOR SCORES: AGE OF TEACHER

	Less Than 30 Years		30 Years & Older	
	Mean	SD	Mean	SD
Factor 1 Cognitive Orientation	38.34*	5.35	36.2	8.12
Factor 2 Interaction Mode	19.44	5.22	19.77	7.11
Factor 3 Control Mode	15.36	3.54	14.69	4.37

*Significantly different (probability $\leq .05$).

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L'utilisation du questionnaire SPOTS comme outil d'introspection
pédagogique: L'expérience d'un professeur de la
province de Québec

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Position de la question

Cent trente (130) étudiants d'un cours de géographie du niveau secondaire I et II ont répondu au questionnaire SPOTS. Tous ont vécu durant une année scolaire (1974-75) des relations professeurs-étudiants se voulant non directives, selon une orientation donnée par le professeur, au moyen d'un cadre d'enseignement centré sur une pédagogie du groupe. Le but de cette communication sera donc d'évaluer, au moyen du questionnaire SPOTS, le niveau de congruence entre les objectifs de non-directivité visés par le professeur au moyen de cette pédagogie de groupe et la perception que se font les étudiants de certains aspects de cet enseignement non-directif.

USE OF THE SPOTS AS A DEVICE FOR PEDAGOGICAL SELF-APPRAISAL:
THE EXPERIENCE OF A TEACHER IN THE PROVINCE OF QUEBEC

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ABSTRACT

One hundred and thirty students in a high-school geography class, levels I and II, filled out the questionnaire. During a full academic year they entered into a teacher-pupil relationship which purposely set aside the principle of coercive guidance and conformed to a set of guidelines laid down by the teacher. These guidelines were designed to be implemented within a teaching framework centered upon a group pedagogy. This paper reports, in the light of the data obtained in the SPOTS questionnaire, the degree to which the objectives which the teacher attempted to achieve in the non-coercive model of education harmonized with the students' perception of certain aspects of the educational model.

УПОТРЕБЛЕНИЕ (ВОСПРИЯТИЕ СТУДЕНТАМИ СТИЛЯ ПРЕПОДАВАНИЯ),
КАК ОРУДИЯ ДЛЯ ПЕДАГОГИЧЕСКОЙ САМООЦЕНКИ: опыт учителя
в провинции Квебек.

Р. Чокетт
Квебек

ВЫДЕРЖКА

130 учеников средней школы 1-го и - 2-го уровней заполнили вопросники в классе географии. Было предусмотрено, что в продолжение всего учебного года принцип принудительного руководства в взаимоотношениях между учителем и учениками будет отсутствовать, а все подчиняться правилам установленным учителем и предназначенных для преподавания сконцентрированного на работе группы. В этой рукописи говорится о том, что если рассматривать полученные результаты в свете результатов полученных посредством вопросника "SPOTS" (Восприятие студентами стиля преподавания) то степень достижения результатов, которую учитель пытался достичь способом обучения без принуждения, согласовывалась со студенческим представлением некоторых аспектов образца образования.

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Professor Choquette's original paper was written in French. He also provided the English translation.

L'utilisation du questionnaire SPOTS comme outil d'introspection
pédagogique: L'expérience d'un professeur de la
province de Québec

R. Choquette
Province de Québec

Le cadre pédagogique, voulu non-directif par le professeur, s'appuie sur les principes directeurs relatifs à l'encadrement des étudiants prônés par Barrington Kay et Irving Rogers dans le volume *Pédagogie du groupe*, publié chez Dunond, Paris 1971. Examinons sommairement les éléments de cet encadrement centré sur le concept de "pédagogie du groupe". - Dans un premier temps les élèves, selon leurs intérêts, sélectionnent un sous-thème s'intégrant dans un thème d'étude correspondant à une étape du programme de l'année. A partir de ces centres d'intérêts, les élèves se groupent en équipes, c'est alors que s'amorcent les différentes étapes du processus d'apprentissage:

- 1) élaboration par les membres de l'équipe d'un plan de travail et prise de décision concernant les moyens à utiliser pour développer le contenu de celui-ci.
- 2) présentation au professeur du plan de travail, des objectifs à atteindre et des moyens d'apprentissage à utiliser.
- 3) cueillette et critique des documents pertinents.
- 4) élaboration d'un échéancier et division du travail par les membres de l'équipe.
- 5) présentation à la classe du résultat des recherches; assimilation, critique et évaluation des présentations au moyen d'une fiche de travail sur laquelle les étudiants se prononcent tant qu'à la forme et au fond des travaux.
- 6) synthèse du professeur se rapportant au contenu présenté et remarques sur les erreurs pouvant s'être glissées dans la présentation.

Pour chacune des étapes, un secrétaire nommé par l'équipe inscrit dans un journal de bord le cheminement de chacun des participants.

L'évaluation quantitative se voulant à la fois qualitative prend la forme suivante:

- 1) 50% des notes d'une étape (un thème ou plusieurs, thèmes développés) provient d'un examen mesurant l'acquisition de connaissances relatives aux contenus des présentations.
- 2) l'autre 50% provient du total des facteurs suivants selon des proportions variables:
 - a) auto-évaluation de l'étudiant mesurant le niveau d'implication de celui-ci par rapport aux objectifs de l'équipe

- b) évaluation de chaque membre de l'équipe par les autres membres de l'équipe selon des critères de participation élaborés par le professeur.
- c) évaluation du journal de bord par le professeur
- d) enfin, évaluation par le professeur et les étudiants de chacune des présentations des étudiants.

Les commentaires du professeur relatifs à la valeur de ce cadre d'apprentissage, sont très élogieux. Les résultats académiques se comparent favorablement à un contexte d'enseignement centré sur le professeur. En plus, l'approche utilisée favorise le développement de plusieurs habilités et d'attitudes importantes à la formation de l'étudiant: initiative, créativité et formation au travail en groupe. Etant familiarisé avec les grandes lignes du contexte pédagogique, voyons au moyen du questionnaire SPOTS la perception que se font les étudiants du professeur à travers ce cadre pédagogique voulu non-directif.

Quelques remarques se rapportant au questionnaire

Le questionnaire ci-après est une version française du document original de l'auteur: Tuckman (1970)(Appendice B). Cette traduction fut validée par un pré-test et des interviews réalisées auprès de groupes d'étudiants du secondaire I et II. Cette étape fut nécessaire pour s'assurer que la traduction française était une réplique fidèle de la version originale anglaise (Appendice A).

D'autre part, le pré-test nous a permis d'apporter des améliorations au questionnaire pour une utilisation au niveau secondaire I et II. La principale modification se situe au niveau de la présentation, ainsi les chiffres correspondants au choix du répondant ont été placés en dessous des phrases caractérisant divers aspects de la directivité ou de la non-directivité du professeur. Cette modification donne plus de clarté au questionnaire et n'en modifie aucunement le contenu.

L'analyse des résultats

Le questionnaire évalue trois dimensions de la directivité ou de la non-directivité des relations professeurs-étudiants:

- 1) l'orientation du contenu et l'évaluation: le premier élément doit-être considéré dans le sens où l'étudiant possède une latitude au niveau d'une réflexion personnelle face au contenu
- 2) l'orientation des procédés
- 3) la discipline

Les tableaux ci-après regroupent les questions se rapportant aux 3 dimensions mentionnées ci-haut. Les colonnes deux et trois indiquent les moyennes et les écarts-types par rapport au neuf choix de réponses par question. La dernière colonne indique la fréquence de réponses en terme de pourcentage.

L'interprétation du tableau 1 peut nous permettre de conclure que la perception des étudiants face au critère "Orientation du contenu et évaluation" apparaît comme non-directive et surtout moyennement directive. Un consensus très marqué qualifie la question 17 reflétant une perception non-directive. Toutes les autres questions à l'exception de la question 14, sont classifiées comme moyennement directives (4-5-6): tendance nettement dominante pour l'aspect orientation du contenu et évaluation. La question 14, selon les indices des répondants, ne correspond pas au contexte du milieu évalué par le questionnaire.

L'analyse du tableau 2 met en évidence deux tendances: la première nous amène à classer les questions 2 et 11 dans la catégorie des perceptions très directives. Cependant les réponses à la question 2 nous portent à croire que même s'il y a une forte tendance à juger cette dimension très directive (2=23% et 3=23%) il n'existe pas de consensus car ce même aspect est jugé moyennement directif par 20% (référence au tableau: 5=20% et écarte-type de 2.4). La seconde tendance se confirme à l'examen de la question 3; l'écarte-type de 2.7 et la colonne des fréquences nous portent à croire qu'il n'existe aucun consensus sur cet aspect.

Bref, la deuxième dimension du questionnaire (orientation des procédés) est surtout perçue comme très directive avec aucun consensus pour la question 3. Selon ces résultats, la méthodologie utilisée par le professeur est beaucoup trop tributaire d'un schéma pré-établi par le professeur pour être qualifié de non-directive.

La dimension "discipline" est perçue nettement comme non-directive par les questions 16 et 7, d'autre part, la perception est moyennement directive avec une forte tendance à la non-directivité pour les questions 15 et 5 (Tableau 3). Les questions 4 et 13 peuvent être classées comme nettement moyennement directives et la question 12 ne reflète aucun consensus à la lumière de l'écarte-type de 2.9 et la distribution des fréquences. Dans l'ensemble, la dimension discipline peut être classée dans la catégorie non-directive avec certaines tendances moyennement directives.

Conclusion

On peut dégager de cette recherche les axes suivants: enseignement variant de la non-directivité (choix 7-8-9) à moyennement directif (choix 4-5-6) pour les critères orientation du contenu (tableau 1) et discipline (tableau 3). Cependant la dimension orientation des procédés (tableau 2) apparaît comme directive. Par rapport à la méthode pédagogique utilisée, l'organisation de la classe et les procédés semblent centrés beaucoup trop sur les décisions du professeur. C'est la seule dimension du questionnaire qui diverge nettement de l'image

non-directive que se fait le professeur de sa classe. Il existe donc nettement congruence entre la perception du professeur et celle des étudiants sur les aspects des tableaux 1 et 3, d'autre part, il y a divergence sur l'aspect orientation des procédés (tableau 2).

L'utilisation du questionnaire SPOTS dans le contexte de cette recherche nous a permis de comparer deux perceptions, celle des étudiants et des professeurs; et des conclusions sommaires sur la congruence des aspects mesures. Dans ce contexte, le questionnaire SPOTS peut devenir un outil d'inspection intéressant pour un professeur évoluant selon un cadre d'enseignement non directif. L'application est simple et peut être utilisée avec un nombre restreint d'étudiants comme dans le cas de cette application.

TABLEAU 1
ORIENTATION DU CONTENU ET EVALUATION

Questions	Moyennes	Ecart-types	Frequences
17	8.0	1.4	9=79.2%
10	6.0	1.6	5=25.3% 6=38.4%
14	3.5	3.5	0=41.5%
9	4.7	2.2	5=25.3% 6=17.7% 4=11.5%
1	6.0	2.0	6=25.0% 5=20.0% 8=18.0%
6	5.1	1.7	6=37.6% 5=25.5%
3	5.0	1.0	5=56.1% 6=22.3%

TABLEAU 2
ORIENTATION DES PROCÉDES

Questions	Moyennes	Ecart-types	Frequences
3	4.7	2.7	1=11% 2=19% 3=18% 8=15% 9=13%
11	3.3	2.2	3=47% 2=22%
2	4.4	2.4	2=23% 3=23% 5=20%

TABLEAU 3
DISCIPLINE

Questions	Moyennes	Ecart-types	Frequences
16	7.0	1.4	8=68.0%
15	6.2	2.5	5=27.6% 9=26.1%
5	6.0	1.7	5=31.0% 6=27.0% 8=17.0% 9=10.0%
4	5.8	1.9	5=22.0% 6=37.0%
13	5.3	1.8	5=33.0% 6=29.0%
7	7.9	2.0	9=12.0% 8=11.0% 7=12.0%
12	5.1	2.9	8=24.0% 5=15.0% 3=11.0% 2=10.0%

Use of the SPOTS as a Device for Pedagogical Self Appraisal:
The Experience of a Teacher in the Province of Quebec

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The pedagogical framework, which the teacher intended to be non-coercive, was based on the principles governing student groupings laid down by Barrington Kay and Irving Rogers (1971) in their book, *Pédagogie du Groupe*. An examination of the features of a student grouping based on the concept of a group pedagogy follows. The students first determine their interests, then choose to concentrate upon some aspect of a topic which they would study during the course of the academic year. Depending on their individual interests, the students set up teams, after which they are ready to embark on their training program. The phases include:

- 1) The team members devise a work plan and agree on which steps are necessary to carry it out.
- 2) They present the work plan to the teacher and outline the objectives they propose to achieve, explaining at the same time how the achievement of these objectives is likely to be of use to them.
- 3) They proceed to collect the pertinent materials, whose worth they carefully assess.
- 4) They prepare a work schedule and apportion the research tasks among the members of the team.
- 5) They present their findings and conclusions to their fellow classmates, who then proceed to write down on a work sheet their estimate of the quality of the work done with respect to content and form.
- 6) The teacher caps the whole performance with his observations on the value of the team's research, taking care to draw his student's attention to the weak points.

At each stage in the implementation of the program, a secretary appointed by the student team makes a careful note, in a special journal, of the contribution of each of the team's members to the achievement of its objectives. The work is appraised on a qualitative as well as quantitative basis. The procedure follows.

First, an exam designed to test the students' grasp of the materials germane to the papers presented counts for 50% of the marks; this mark is assigned after one stage of the work plan which involves research into one or more of its principal areas is completed.

Second, the other 50% of the work is intended to reflect student performance from a number of different standpoints:

- 1) The student personally estimates the degree to which he has contributed to the reaching of his team's objectives.

- 2) The team as a whole evaluates the worth of each of its members' performances in the light of criteria laid down by the teacher.
- 3) The teacher appraises the contents of the team's journal.
- 4) Lastly, both teacher and students pass judgement on each of the papers presented.

Teachers have enthusiastically praised this pedagogical approach. From the point of view of the marks obtained, it compares favorably with a learning situation centered on the teacher. It also enables students to develop the skills and abilities which are of basic importance to their intellectual formation: initiative, creativeness, and ability to undertake group tasks. Now that the general outline of this pedagogical model has been described from a teacher's viewpoint, it's important to examine the students' perception of the teacher's role. This was accomplished using the Student Perception of Teacher Style (SPOTS) questionnaire.

Observations on the Questionnaire

The instrument used was a French version of a questionnaire prepared by Tuckman (1970) (Appendice B). Its intelligibility to students was substantiated by a pretest and by student interviews conducted at secondary school levels I and II. These were carried out to ensure that the French translation accurately rendered the contents of the English original (Appendix A).

The pre-test was useful in another way. It enabled the researcher to adapt the questionnaire to the situation of secondary school students I and II. The page format was the principal item to be modified. The number corresponding to the student's choice from among the possible responses was placed below the statement defining some particular aspect of the teacher's relationship to his class. This modification made the questionnaire easier to follow while in no way altering its content.

Analysis of the Findings

The questionnaire was used to reveal three principal features of the teacher-pupil relationship as affected by the adoption or rejection of a course format stressing teacher authority:

- 1) Determination of course content and evaluation. (The first element takes cognizance of the degree to which the student is able to judge what intellectual appeal the course has for him personally.)
- 2) Determination of course procedures.
- 3) Field of study.

The following tables group together the questions relating to the above-mentioned features. Columns two and three indicate averages and standard deviations with respect to the nine possible responses to a question (Appendix A). The last column indicates the most frequent response(s) in percentage figures.

Table 1 permits the analysis of the determination of course content and evaluation. Students' perception was of a non-coercive course format or one which was moderately coercive. The remarkable unanimity of response to Question 17 was evidence of a non-coercive bias. All the other questions, except Question 14, elicited responses indicative of a moderately coercive bias (4-5-6). These data suggested that students perceived the teacher as determining course content and evaluation in a moderately coercive course format. As for Question 14, student responses suggested that this question lacked specific relevance to the contextual situation under scrutiny in the questionnaire.

Table 2 suggests evidence of two tendencies. The first compels the categorization as coercive, reflected in student responses to Questions 2 and 11. The responses to Question 2 suggested that, though the students' perception was clearly in favor of coercive guidance (2=23% and 3=23%), consensus was not achieved. Approximately 20% of the total response suggested a moderately coercive bias (5=20% and a standard deviation of 2.4). The second tendency became apparent when the responses to Question 3 were examined. The standard deviation of 2.7, in conjunction with the column of frequencies, suggested that no consensus was reached in this area.

In short, student perception regarding the determination of course procedures was, on the whole, strongly toward coercive guidance, though it must be borne in mind that there was not total consensus. According to these findings, the methodology adopted by the teacher was not closely modeled along the course format described earlier as group pedagogy in a non-coercive style.

Regarding field of study, student responses to Questions 16 and 7 plainly revealed a non-coercive perception. The student responses to Questions 15 and 5 suggested a perception which was moderately coercive, though the non-coercive behavior by the teacher remained quite pronounced (Table 3). Questions 4 and 13 elicited a response which was unmistakably indicative of a moderately coercive bias, whereas Question 12, given its standard deviation of 2.9 and its pattern of frequencies, suggested a lack of consensus. On the whole, student responses to the field of study remain non-coercive, with some partiality occasionally evinced for moderately coercive behavior.

Conclusion

The findings suggested that where determination of course content (Table 1) and field of study (Table 3) are concerned student perception of course format was inclined toward the non-coercive (choices 7-8-9) and the moderately coercive (choices 4-5-6). On the other hand, in the case of the determination of course procedures (Table 2), student perception suggested coercive guidance. Furthermore, if pedagogical method employed by the teacher is considered, it appears that the teacher was quite

coercive in deciding how the class was organized and which course procedures were adopted. This was the only area of the questionnaire where student perceptions were directly counter to the non-coercive idea the teacher entertained as the mode of conducting class. In summary, there was patent harmony between teacher and students as to how the questions outlined in Tables 1 and 3 were perceived, but they were not congruent in matters pertaining to the determination of course procedures (Table 2).

The SPOTS questionnaire has provided a method of comparing two perceptions of a course format: the students' and the teacher's. It has also helped to draw tentative conclusions as to the extent to which students and teachers agree or disagree on the coercive dimensions of teaching. For these reasons, the author believes the SPOTS questionnaire is a useful investigative tool in the hands of a teacher intent upon obtaining student feedback regarding course format and teacher classroom style.

TABLE 1
DETERMINATION OF COURSE CONTENT AND EVALUATION

Question	Average	Standard Deviation	Most Frequent Responses as %
17	8.0	1.4	9=79.2%
10	6.0	1.6	5=25.3% 6=38.4%
14	3.5	3.5	0=41.5%
9	4.7	2.2	5=25.3% 6=17.7% 4=11.5%
1	6.0	2.0	6=25.0% 5=20.0% 8=18.0%
6	5.1	1.7	6=37.6% 5=25.5%
8	5.0	1.0	5=56.1% 6=22.3%

TABLE 2
DETERMINATION OF COURSE PROCEDURES

Question	Average	Standard Deviation	Most Frequent Responses as %
3	4.7	2.7	1=11% 2=19% 3=18% 8=15% 9=13%
11	3.3	2.2	3=47% 2=22%
2	4.4	2.4	2=23% 3=23% 5=20%

TABLE 3
FIELD OF STUDY

Question	Average	Standard Deviation	Most Frequent Responses as %
16	7.0	1.4	8=68.0%
15	6.2	2.5	5=27.6% 9=26.1%
5	6.0	1.7	5=31.0% 6=27.0% 8=17.0% 9=10.0%
4	5.8	1.9	5=22.0% 6=37.0%
13	5.3	1.8	5=33.0% 6=29.0%
7	7.9	2.0	9=12.0% 8=11.0% 7=12.0%
12	5.1	2.9	8=24.0% 5=15.0% 3=11.0% 2=10.0%

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STUDENT PERCEPTION OF TEACHER STYLE IN GEOGRAPHY: NIGERIA

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ABSTRACT

This investigation was designed to study student perception of teaching style in geography. The classroom behaviours of twelve geography teachers were rated on the Student Perception of Teacher Style (SPOTS) by 308 students in twelve different geography classes in schools of the Western State of Nigeria. The following conclusions were made on the basis of the findings: 1) Geography teachers with less than five years of experience were more directive in their teaching orientation than geography teachers with five or more years of experience, 2) The sex of the geography teacher was in general unrelated to the ratings received, and 3) The sex of the geography student raters was related to their ratings of geography teachers. The findings have implications for the supervision of geography teachers and also for the teacher who wants to know how to begin improving instructional effectiveness.

PERCEPTION PAR LES ÉLÈVES DU MODE D'ENSEIGNEMENT DE LA GÉOGRAPHIE AU NIGERIA:

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RÉSUMÉ

Cette enquête voulait étudier la perception par les élèves du mode d'enseignement de la géographie. Les attitudes en classe de douze professeurs de géographie furent évaluées avec le test: SPOTS (perception par l'élève du mode d'enseignement) appliqué à 308 étudiants dans douze classes différentes de géographie dans les écoles de l'ouest du Nigeria. On peut en tirer les conclusions suivantes fondées sur les données de l'enquête présente: 1) Les professeurs de géographie qui ont moins de cinq ans d'enseignement sont plus autoritaires dans l'orientation de leur enseignement que les professeurs qui ont cinq ans ou plus d'expérience professorale. 2) Le fait que le professeur est homme ou femme n'a rien à faire avec les évaluations. 3) Le fait que l'élève est garçon ou fille a un certain rapport quant aux évaluations des professeurs de

géographie. L'article démontre que les résultats de l'enquête ont certaines implications pour l'inspection des professeurs de géographie et aussi pour le professeur qui veut savoir comment améliorer son rendement et l'efficacité de son enseignement.

ВОСПРИЯТИЕ СТУДЕНТАМИ УЧИТЕЛЬСКОЙ МАНЕРЫ
ПРЕПОДАВАНИЯ ГЕОГРАФИИ: НИГЕРИЯ.

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Нигерия

ВЫДЕРЖКА

Это исследование было создано с целью изучения студенческого восприятия манеры преподавания географии. Поведение двенадцати преподавателей в классе географии было зарегистрировано методом "SPOTS" (Студенческое восприятие стиля преподавания) 308 студентами в двенадцати разных классах географии в школах западного штата Нигерии. Можно сделать следующие заключения на основании результатов в границах предпринятого исследования. 1. Преподаватели географии, с учебным стажем менее пяти лет, более директивны в своих методах преподавания, чем учителя географии с пятигодовичным стажем и выше. 2. Пол преподавателя географии, в общем, не имеет отношения к полученным результатам. 3. Пол ученика, наблюдающего преподавателя географии, имеет отношение к его заключениям. Указывается, что результаты могут быть вовлечены в наблюдения над учителями географии, а также имеют значение для учителя, который хочет знать с чего начать, чтобы повысить эффективность своего преподавания.

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Student Perception of Teacher Style in Geography: Nigeria

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Previous attempts to develop procedures for assessing teaching styles have been made by Wispe (1951) and Perkins (1964). More widely accepted procedures in this area have been developed by Amidon and Flanders (1963). The Amidon-Flanders approach requires trained observers to enter classrooms, categorize the verbal behaviour of the teacher and to subsequently produce matrices of these verbal responses. Despite their widespread acceptance as measures of teaching style, the psychometric sophistication of the Amidon-Flanders approach is somewhat impaired by its awkwardness and inefficiency. The observations involved, for instance, are expensive in terms of the professional skill demanded of observers.

Remmers (1963) has suggested that "many of the variances in research on teaching are so complex that tests, questions, and objective behaviour records are either inadequate or too inconvenient". As an alternative, he proposed the use of student ratings. Even though critics of the use of student ratings have pointed to the inadequacy of the student as a judge of teaching ability, emphasizing his lack of experience and the difficulty of reporting judgements which are free from subjective bias, proponents of this approach, on the other hand, have tended to emphasize that effective learning results from the interaction of student and teacher and that however biased ratings may be, they are valuable as a source of information concerning student reactions to the behaviours of teachers. Meanwhile, evidence has accumulated concerning students' ability to rate instructors, and more and more institutions, most especially in the U.S., have turned to student rating (Mueller, 1951). Well designed studies have demonstrated that student ratings are reliable (Remmers, 1939). Others have provided evidence that ratings on multiple attributes need not be influenced by halo (Hobson, 1950). At least one study has shown that student ratings are similar to ratings of alumni after ten years of seasoning (Drucker, 1951).

Problem

It is the purpose of this investigation to study student ratings of male and female, experienced and less experienced geography teachers' classroom behaviours on the directiveness dimension. The directiveness or non-directiveness, i.e., permissiveness, of the teacher in teaching geography is considered an important factor capable of influencing student achievement in the subject. For the purpose of this study, directive teaching emphasizes structure and interpersonal relationships in the classroom. The following illustrate the study's concept of directive teaching (Tuckman, 1970).

- 1) Formal planning and structuring of course work.
- 2) Minimization of informal work or small group work.
- 3) Rigid structuring of such small group work as is employed.
- 4) Rigid structuring of individual and class activities.
- 5) Emphasis of factual knowledge or knowledge derived from sources of authority, e.g., books, school administration.
- 6) Use of absolute and justifiable punishment.
- 7) Minimization of the opportunity to make and learn from mistakes.
- 8) Maintenance of a formal relationship with students.
- 9) Assumption of total responsibility for grades.
- 10) Maintenance of formal classroom atmosphere.

Hypothesis

Two hypotheses were tested:

- 1) There are no significant differences between the average ratings of male and female, experienced and less experienced geography teachers' classroom behaviors on the directiveness dimension.
- 2) The sex of student raters bears no relationship to their ratings of geography teachers' classroom behaviours.

Research Design

The classroom behaviours of twelve geography teachers were measured by means of a rating instrument, the Student Perception of Teacher Style (SPOTS), given to all students in twelve different classes taught by the teachers. By means of a two-way factorial analysis of variance, the geography teachers' classroom behaviours, in terms of their directiveness or non-directiveness, were compared on two variables, sex and experience. The Student's t-test was used for the comparison of group means.

Sample

Twelve secondary grammar schools randomly selected in the Western State of Nigeria participated in this study. Three of the schools were for boys, five for girls, and four were mixed. Twelve geography teachers from the schools were involved in the study; six of them were male and the others female. All of them were university graduate teachers of geography. The teachers' experience ranged from 1-10 years. For the purpose of this study teachers with less than five years of teaching were considered as being less experienced whilst those with five or more years of teaching were regarded as experienced teachers.

Twelve fourth form (tenth grade) geography classes were used for this study. The classes were used because, at that level,

students' understanding of English is generally fair. Furthermore, they were considered by the researcher to be mature enough to rate their teachers. The classes ranged in size from 20 to 42, with a total of 308 geography students in all classes. The ages of the students ranged from 13 to 19 with the median at 15. Classes were either composed mainly of boys or girls, with four being mixed. The distribution of the students according to the sex and experience of teachers is shown in Table 1. Figures in brackets refer to the number of teachers.

Instrument

The student rating scale, the Student Perception of Teacher Style (SPOTS), used in the present study was developed by Tuckman (1970). The rating scale consisted of seventeen items each describing a facet of classroom behaviour indicative of the directiveness or non-directiveness of teaching style based on the operational definition already given. The article by Steinbrink provides a general description of the SPOTS as a research instrument. The instrument appears as Appendix A.

Administration

The SPOTS was administered by the researcher to twelve geography classes in twelve schools. In order to enable students to rate honestly and freely, geography teachers were politely requested not to come to classrooms with the researcher.

Having explained briefly to students the purpose of the rating scale, copies of the SPOTS and the response sheets were distributed. Two items designed by the researcher were used to train students in the use of the instrument and the machine scorable response sheets. The two items were not related in any way to any of the seventeen items on the SPOTS. Each item was read out by the researcher to the class before students rated teachers on the item. This was to ensure that each item was properly understood before a response was provided. An item was read out after all class members had completed the previous item. No discussion of any form was allowed among students during the administration. Having completed the seventeen items, copies of the SPOTS and the response sheets were collected from students.

The procedure of administration was, as much as possible, made uniform in all classes/schools. The fourth formers had no problem whatsoever with the instrument and the response sheets. Indeed, most of them did enjoy what they regarded as the first experience of rating their teachers. The average time for the administration of the instrument in classes was 45 minutes.

The response sheets were machine scored. The total score indicated on any response sheet is the summation of the scores on the seventeen items of the SPOTS.

Result and Analysis

In order to test the first hypothesis of this study, groups were compared by using a 2 x 2 factorial analysis of variance with sex and experience of teachers as main effects. The results of the analysis are given in Table 2.

The table shows that there was a significant difference between the classroom behaviours of experienced and less experienced geography teachers. The F-ratio of 67.50 revealed a significant treatment difference (.01 level) in favour of the experienced teachers. There was no significant main effect for sex nor was there any significant interaction involving experience and sex. It was therefore concluded that the first null hypothesis of this study was rejected on the experience, but not on the sex variable. It seemed that the more experienced teachers were less directive, i.e., more permissive, in their teaching orientation than the less-experienced teachers.

It was discovered that these findings were further reinforced when the SPOTS items were classified into the following subareas:

Cognitive Orientation items: ratings on items 1, 3, 6, 9, and 15 were combined for each rater; this combination represented the operation of the concept of cognitive orientation. The concept dealt with the organization of subject matter and the kinds of learning being promoted.

Interaction Mode Items: the ratings combined under the concept of interaction mode included items 4, 5, 7, 8, 12, and 13. The concept was not only concerned with the adequacy of relations with students but also with ways in which the members of the classroom setting communicated with each other.

Control Mode Items: these include items 2, 10, 11, 14, 16 and 17 which dealt with the adequacy of class management.

As shown in Tables 3, 4, and 5 the classroom behaviours of the geography teachers on the directiveness dimension were also compared on the basis of the three concepts. Tables 3 and 4 reveal that experienced teachers showed less directive, or more permissive, traits than the less experienced on the basis of cognitive orientation and control mode variables. Under both variables, there were no significant differences between the male and female geography teachers' classroom behaviours. On the other hand, the significant experience by sex interaction in Table 5 suggested that, as far as the interaction mode variable was concerned, teachers' behaviours on the directiveness dimension depended on their level of experience and sex. Whereas for the experienced teachers, the males were more permissive than their female counterparts, for the less-experienced teachers it was the female teachers who were more permissive, i.e., less directive, than the males.

For further diagnostic purposes, subarea scores were put into profile form. This clearly exhibited comparative subarea ratings given experienced and less experienced teachers. Such a profile is shown in Table 6. On the profile, the experienced teachers were ranked highest on the interaction mode variable and lowest on the control mode variable. On the other hand, the less-experienced teachers were ranked highest on cognitive orientation and lowest on control mode.

In testing the second hypothesis for this study, the rating scores of male and female student raters were compared in Table 7 by computing a t-test of the significance of the difference between the means of the sex groups. The obtained t-value of 3.62 was significant at the .001 level. Female students were rating their teachers' classroom behaviours higher than the male students did. Similar results were also obtained in mixed classes, taught either by male or female teachers. In other words, irrespective of the sex of the teacher, female students rated their teachers' classroom behaviours higher than did the males. The second null hypothesis for this study was therefore rejected.

Discussion

The test of the first hypothesis of the present study led to two major findings: first, teachers with less than five years' experience were rated lower than teachers with five or more years' experience; and second, the sex of the geography teacher was unrelated to the ratings received. These two findings confirmed those previously made by Remmers (1963). The findings indicated that sex might not be a variable affecting geography teachers' classroom behaviour on the directiveness dimension, and that teachers' levels of experience were a more important variable.

Some reasons could be advanced for the first major finding. As a result of his longer years in the teaching profession, the experienced teacher, unlike the less experienced, might have learnt to understand and respect his students, the material he teaches, and the internal workings of the school. He might also be able to select methods of teaching appropriate to students and the subject matter. As a result of developing understanding and ability in these areas, the experienced teacher, in contrast to the less experienced, could control his class by many methods: absence of rules, great flexibility of his plans, adjustment of work to the individual capacities of his pupils, encouragement to participation for the already-withdrawn, affection for the neglected, self-confidence for the insecure, diversion of expression for the attention seeker, and so on. As will be noted, such a teacher's efforts are directed towards avoiding situations that demand discipline. By doing so, he prevents the arousal of the destructive emotions that ruin the relation between him and his pupils and make learning difficult. On the other hand, the less experienced teacher might often be strict, authoritarian and domineering and so he could accumulate emotional problems for himself and for his students.

The result obtained from the test of the second hypothesis of this study was that the sex of student raters was in relationship to their ratings of teachers. The finding did not confirm that of Remmers (1963) which indicated no relationship between the sex of student raters and their ratings of teachers. In the present study, irrespective of the sex of teachers, female students rated their teachers much higher than the male students. Perhaps, this might be explained by the fact that the male adolescent students generally have a more negative attitude than their female counterparts, and so they are likely to be more critical of their teachers than the female students.

Educational Implications

The findings which result from the test of the first hypothesis of this study seemed to imply that student ratings of teachers constituted a valid procedure for evaluating teachers' classroom behaviours. In many countries, the evaluation of teachers' classroom behaviours has always been based mainly on observations carried out by cooperating teachers, college supervisors, or Ministry officials. Such observations are not only expensive in terms of time and money but also in terms of the professional skill demanded of observers. The present study suggested that, by means of student evaluation, it is quite possible to distinguish effective teachers from less effective ones without observing them while they teach. Thus, student ratings of teachers' classroom behaviours constitute another evaluation procedure for teaching effectiveness which could be used to supplement current classroom observation procedure. Already, evidence has indicated that students discriminate reliably among different aspects of the teacher's personality and of the course (Remmers, 1934) and so student evaluation could be a useful, convenient, reliable, and valid means of evaluating teachers' classroom behaviours.

Student ratings of teachers can also generate self-supervision and self-improvement in the latter because the teacher can see himself, from such ratings, as students see him. One of the ways of using an instrument such as the SPOTS to obtain this end has been demonstrated in this study. The evaluation instrument could be classified into sub-areas and the sub-area scores put into profile form, clearly showing comparative sub-area ratings given the teacher. An individual's standings on the sub-areas are relative to one another and not to any external standard. The profile does not indicate how a teacher compares with other teachers in general effectiveness. Rather, it shows the relatively strong and weak areas of his own performance, so that he knows where he might improve his teaching.

In view of the findings from the second hypothesis of this study, the need for a further replication of the study with a larger sample and other subjects in the school curriculum is clearly indicated. Meanwhile, it is suggested that wherever possible adolescent student evaluation of geography teachers'

classroom behaviours should include ratings not only by the male adolescent students but also by their female counterparts. The male adolescent students, it seems, are more critical in their ratings of teachers' behaviours than the female adolescent students.

TABLE 1
DISTRIBUTION OF STUDENTS

Sex/Experience	Experienced Teachers	Less-Experienced Teachers	Total
Male Teachers	90(3)	85(3)	175(6)
Female Teachers	64(3)	69(3)	133(6)
Total	154(6)	154(6)	308(12)

TABLE 2
ANALYSIS OF VARIANCE ON GEOGRAPHY TEACHERS' SPOTS SCORES

Source of Variation	Sum of Squares	D.F.	Mean Square	F
Level of Experience	5987.55	1	5987.55	67.50**
Sex	22.50	1	22.50	0.25(NS)
Experience x Sex	147.34	1	147.34	1.66(NS)
Within Treatments	26963.13	304	88.70	

** $p < .01$

TABLE 3
ANALYSIS OF VARIANCE ON COGNITIVE ORIENTATION ITEMS

Source of Variation	Sum of Squares	D.F.	Mean Square	F
Level of Experience	144.58	1	144.58	6.37*
Sex	0.13	1	0.13	0.01(NS)
Experience x Sex	53.46	1	53.46	2.36(NS)
Within Treatments	6897.89	304	22.69	

* $p < .05$

TABLE 4
ANALYSIS OF VARIANCE ON CONTROL MODE ITEMS

Source of Variation	Sum of Squares	D.F.	Mean Square	F
Level of Experience	1401.46	1	1401.46	34.69**
Sex	13.07	1	13.07	0.32(NS)
Experience x Sex	153.54	1	153.54	3.80(NS)
Within Treatments	12281.60	304	40.40	

**p <.01

TABLE 5
ANALYSIS OF VARIANCE ON INTERACTION MODE ITEMS

Source of Variation	Sum of Squares	D.F.	Mean Square	F
Level of Experience	696.00	1	696.00	19.82**
Sex	101.26	1	101.26	2.88(NS)
Experience x Sex	244.11	1	244.11	6.95**
Within Treatments	10673.47	304	35.11	

** p <.01

TABLE 6
A PROFILE RESULTING FROM THE USE OF THE SPOTS
FOR GEOGRAPHY TEACHERS

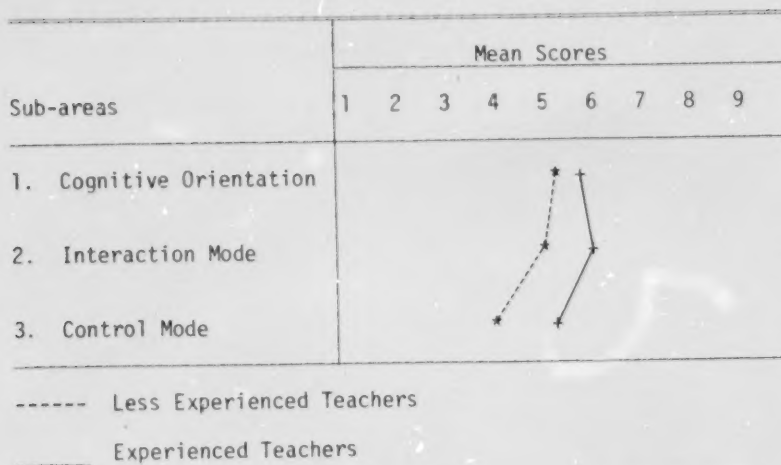


TABLE 7
COMPARISON OF THE RATING SCORES OF MALE AND FEMALE
STUDENT RATERS

Group	N	Mean	S.D.	t	p
Male	169	85.59	13.70	3.62	<.001
Female	139	90.48	9.81		

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HONG KONG STUDENTS' PERCEPTIONS OF SECONDARY GEOGRAPHY TEACHERS' CLASSROOM STYLE

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ABSTRACT

Secondary geography students in 14 Hong Kong schools responded to the SPOTS questionnaire. The data suggested that Hong Kong teachers in general were perceived by their students as maintaining a directive role in the classroom. Male teachers tended to be somewhat less directive than females. Teachers with six or fewer years of experience generally were perceived as less directive than teachers with more than six years experience. The use of the SPOTS data as teacher feedback for changing teaching behavior is discussed.

PERCEPTION DU MODE D'ENSEIGNEMENT DES PROFESSEURS DE GÉOGRAPHIE PAR LES ÉLÈVES DES ÉCOLES SECONDAIRES DE HONG-KONG:

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RÉSUMÉ

Les élèves de classes de géographie de 14 écoles secondaires de Hong-Kong ont répondu au questionnaire de SPOTS. Les renseignements ainsi obtenus suggèrent que les élèves voient leurs professeurs comme étant la force directive de la classe. Les professeurs hommes le sont moins que les professeurs femmes. Les enseignants qui ont six ans ou moins d'expérience sont, en général, considérés comme étant moins autoritaires que ceux qui ont plus de six ans d'expérience. L'article discute l'emploi de la méthode SPOTS pour renseigner le professeur sur son rendement et pour changer la méthode et l'attitude du professeur.

ВОСПРИЯТИЕ УЧЕНИКАМИ СРЕДНЕЙ ШКОЛЫ В ГОН-КОНГЕ
СТИЛЯ ПРЕПОДАВАНИЯ ГЕОГРАФИИ

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ВЫДЕРЖКА

Ученики географии в 14 школах Гон-Конга заполнили вопросники "SPOTS" (Восприятие Студентами Стиля Преподавания). Полученные результаты наводят на мысль, что учителя Гон-Конга, в целом, воспринимаются их учениками в направляющей, директивной, роли в классе. Учителя мужского пола склонны быть менее директивны, чем представительницы женского пола. Вобщем было замечено, что учителя с шестигодчным стажем преподавания или со стажем менее шести лет. были менее директивны, чем учителя с опытом превышающим шесть лет. Подлежит обсуждению оповещение учителям данных "SPOTS" для изменения их поведения в обстановке класса.

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Hong Kong Students' Perceptions of Secondary Geography Teachers' Classroom Style

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The education of Hong Kong geography teachers has been a topic of major concern during recent years. The research and writing by Ho (1972), Au (1973) and Shortle (1975) suggested topics of teacher training and student learning which should be investigated. Although Shortle (1975) suggested educational research in the context of teacher and pupil curriculum planning, it did not include the necessary focus upon models of instructional behavior. Alternatives to the lecture - read - recite trilogy are not emerging in Hong Kong at nearly the rate they have appeared in other nations, namely the United Kingdom (Ho, 1972).

This dearth of research activity on teacher behavior led the author to investigate that question in fourteen Hong Kong secondary schools. Several hazards underlay such research. First, it represents a research frontier, especially in the collection of data regarding students' perceptions of their teachers. A certain uneasiness prevails when the student is asked to rate the teacher, although the reciprocal, teacher rating of students, is an accepted fact of education. Second, the instructional staff of Hong Kong is not generally exposed as participants in educational research. It represents something new, and by traditional standards, quite removed from the teacher's role in the classroom. Thus, the involvement by students and the reluctance by teachers to participate in a research endeavor were both conditions which required careful analysis and public relations prior to the data collection stage. Fortunately, the researcher had established contacts with teachers through professional activities and the ensuing rapport was great enough to diminish the concerns of even the most hesitant of teachers.

The research instrument used in the data collection was the Student Perception of Teacher Style, SPOTS (Tuckman, 1970). The instrument was described in detail by Steinbrink in an article included in this volume. For research purposes, the SPOTS was used in the form in which it appears as Appendix A.

Research Design

The research design was a comparative survey. Existing classrooms were selected and the data collection procedure was imposed. Such a design was acceptable for the descriptive type of research undertaken. The situation in which the data were collected represented the classroom environment as it existed.

The author appreciated the assistance from J. Stoltman in drafting segments of this paper.

Normal instruction was not disturbed by the research, except for the administration of the SPOTS. Neither the teachers nor the students were aware of an experimental situation. The instructional style, as exemplified by the teachers and perceived by the students, closely represented normal classroom instruction for the sample.

Population Samples

The sample included ten male and ten female teachers of geography. All the teachers had completed a B.A. degree, either in geography or some combination of geography, geology, and history. Most of the teachers held honors degrees in their discipline. Several had received the Diploma of Education, several others were studying towards it, and several had no formal teacher training. The teachers were Chinese between the ages of 25 and 35 years at the time of administering the SPOTS questionnaire. Most were teaching in urban Anglo-Chinese secondary schools where the medium of instruction was English. The majority of these schools were either government run or subsidized by the government. As a group, the teachers probably reflected a representative cross section of Chinese teachers with the B.A. degree in Hong Kong.

There were 1570 students who participated in the research. All were enrolled in geography classes and had achieved above average results in geography on the Certificate of Education Examinations. The Certificate of Education Examination is a public examination taken by all students at the end of the fifth year of secondary education. Their grade levels ranged from 9th grade, Form 3, to 12th grade, Form 6. Chinese was their mother tongue, but classes were held in English. In the case of the younger students, the teachers administering the SPOTS were requested to explain as fully as possible in both English and Chinese the various items on the questionnaire as well as the correct procedure in completing the data sheet. This was done so the students would have no language handicap in understanding the exercise. Since the students were assigned to their classes and teachers under normal procedures, they reflected a representative cross section of Hong Kong students in English speaking schools.

Sampling Technique

Three conditions functioned in the sampling technique which may have biased the study. The researcher did not believe the effect of these criteria to be significant in terms of the general data base. First, the research and data collection required the permission of the teacher. It was deemed inappropriate to attempt such a study without first obtaining the permission of the teacher.

Second, the selection of teachers, and subsequently the schools and students, were subject to personal contacts. Schools

were selected in which the researcher personally knew teachers and administrators and was assisting in instructional development. The selection of schools was thereby affected.

Third, since the research instrument (SPOTS) was available in English, it was essential to involve only those student populations which could read the language with confidence. This, of course, ruled out numerous Chinese speaking schools and those schools which included students of marginal ability in English. Thus, a good deal of uniformity for teachers and students was introduced through the selection criteria. These conditions for selection reflected realistic problems the researcher faced beginning the data collection stage. The reader is reminded that the following data and analyses reflect the above constraints.

Analysis of Data

Frequency counts, means and standard deviations were calculated for the samples of teachers and students. These measures of central tendency describe general trends and reflect the response patterns for the 1570 students. Means and standard deviations for each of the 17 variables on the SPOTS are shown in tabular form (Table 1). In general, the range of means and standard deviations suggested varying degrees of teacher directiveness-non directiveness as perceived by the students. Means ranged from 6.05 to 3.62. The higher means reflected a considerable degree of non-directiveness, while the lower means suggested that students perceived the teachers to be quite directive.

If one assumed that 5.00 on the SPOTS scale was the mid value, then ten of the variables had a value less than 5.00, three were within .08 of 5.00, and four were somewhat above the mid-value. The overall pattern clearly suggested a directive orientation by the Hong Kong teachers in the sample. Those variables that suggested somewhat less directive behavior deserve closer inspection.

Variables 5, 10, 15, and 17 had values of 5.27 or above. As a group, these variables suggested that:

- 1) Pupils feel they can disagree with the teacher or another student when the teacher requests this reaction, such as "Does anyone disagree with the answer?"
- 2) Pupils perceive the teacher to suggest ways in which group projects can be completed, rather than telling students exactly what to do;
- 3) Pupils perceive that homework is a combination of daily and long term assignments; and
- 4) Pupils can choose their work mates when asked to study or complete a task with another student.

These variables suggested that non directive teacher behavior was carefully defined by teacher role. Those variables which had means above mid-value on the scale clearly indicated that students were accustomed to and responded to teachers who assumed a generally directive role.

Additional information may be gathered by observing the frequency counts for the data (Table 2). These data exhibited the clustering which occurred in the response patterns. These patterns explained somewhat the standard deviations (Table 1), suggesting the agreement which existed regarding that particular classroom trait in the teacher sample.

Analysis by Teacher Sex and Teaching Experience

The students in the sample were classified according to the sex of their teacher. The means for each group on each of the 17 variables were analyzed for significant differences using the Student's t technique (Table 3). There were ten significant differences (probability $< .05$) between males and females on the 17 variables. Seven of the variables suggested that male teachers were less directive, while females were less directive on three variables. A closer inspection of the variables revealed additional data regarding the trends.

Males were perceived by their students as significantly less directive than females on variables 4, 8, 10, 12, 13, 15 and 17 (Appendix A). In summary, the male teachers were perceived by students:

- 1) as somewhat more receptive to the students asking questions of the teachers;
- 2) as using humor or jokes more often for getting points across;
- 3) to be less formal in directing group projects;
- 4) to be somewhat more inclined to accept anger as an emotion;
- 5) to maintain a more consistent image of teacher and friend, i.e., not solely as a teacher;
- 6) to use a greater mix of daily work and long term projects; and
- 7) permitting greater selection by students in determining who they work with on small-group study.

The female teachers, on the other hand, were perceived:

- 1) to be somewhat less concerned with facts and slightly more concerned with getting ideas across;
- 2) to be somewhat more concerned with attendance; and
- 3) working students in groups or as committees more regularly as part of their studies.

There were no significant differences between the two groups on six of the variables. It was interesting to note that among

the variables with no significant difference, only two were relatively close to mid-value, suggesting more directive behavior by both groups of teachers on these variables.

For the second analysis, the students in the sample were classified according to their teacher's teaching experience in years. Seven of the teachers had six years or less experience (≤ 6) and twelve had more than six years of experience (> 6). Data for two of the twelve teachers were deleted due to incomplete biographical information necessary for adequate analysis. The means for each group on each of the 17 variables were analyzed for significant differences using the Student's *t* technique (Table 4).

There were eight significant differences between the two groups for the 17 variables. Six of the differences suggested that teachers with six or fewer years of experience tended to be less directive than their more experienced colleagues (Table 4). On two variables the data suggested that more experienced teachers were less directive. The general trends seemed to be more important than differences in specific variables. Younger teachers in the sample exhibited a less directive classroom style. Two of the variables for the groups were above the midpoint (5.00) on the scale. The remaining four were below the mid-value. The differences, thus, seemed to be in degree of directiveness-non directiveness, which further explained the relationship of mean scores across the variables where both groups were below or above mid-value (5.00) on the scale.

The researcher judged that it was desirable to submit the data to factor analysis procedures in order to examine commonality among the variables. All 17 variables grouped into three factors, identified as the: 1) cognitive orientation, 2) interaction mode and 3) control mode (Table 5). The factor analysis procedure grouped variables based upon the commonality of relationships between subjects for those particular variables. Differences that appeared in the factor loadings between studies in this monograph represented a statistical deduction reflecting the interaction of culture within the response patterns. Cultural bias might place a particular variable in one mode in one setting, but in a different mode in another setting. This suggested that the scale was not culture free, and must be evaluated in terms of the setting in which it was used. The factor scores reflected the combined scores for the variables which emerged as the factor matrix was rotated. The factor scores were then analyzed by teacher sex and experience using the Student's *t* technique.

Two significant differences were observed between males and females on the factor scores. Both differences suggested that males tended to be somewhat less directive on factors two and three than were females (Table 6). There were no significant differences between the two groups on cognitive orientation. These data suggested that a cognitive orientation was maintained

as a relative constant by both groups, but there were variations in the other aspects of classroom style.

The analysis of factor scores for teachers grouped by experience revealed two significant differences (Table 7). Factor two scores suggested that less experienced teachers (< 6 years) tended to be less directive on the interaction mode than their more experienced colleagues. Factor three scores suggested that the more experienced teachers (> 6 years) were somewhat less directive in the control mode of classroom style. As with the analysis by sex, no significant difference was observed between groups for factor one. This again suggested that content was a relatively invariable aspect of classroom style within the sample of teachers.

Discussion and Implications

The general response patterns by Hong Kong students suggested that they perceived their teachers in a directive style of classroom behavior. Of the seventeen variables on the SPOTS, ten means were recorded below the mid value (5.00) of the scale, three were near the mid value, and four were recorded above mid-value. These data suggested that the directiveness dimension was a matter of degree, and teachers were not perceived to be totally directive (1.00) nor totally non-directive (9.00). Instead a great deal of interaction between directive and non directive behavior apparently took place near mid scale and was manifested as quantitatively small gradations. It was interesting to note, however, that qualitatively the students did respond with observations that reflected perceived differences:

One implication which can be drawn from these data is that movement across the scale or changes of several, two or more points, probably would not occur unless the teacher introduces some type of behavior perceived as unusual by the students. Changes in teacher behavior, planned or evolved, occurred on the scale as very small steps. This might be further explained by the sequence of cumulative observations of the teacher by the student, the perception of the students interacting with the SPOTS scale, and the actual interval selected to describe the teacher's style. In this manner significant qualitative changes in teacher behavior may appear as quantitatively small steps.

Differences between teachers by sex were observed in the data analysis. The data suggested that students perceived male teachers to be somewhat less directive than female teachers. Knowledge about a number of other conditions would be necessary to explain these differences. One would need to analyze the traditional role of males and females in Hong Kong schools and the roles of the sexes in society in general. Do male teachers reflect a father image in their classroom style? Do female teachers find it more comfortable to maintain a heavier hand with groups of students? Did male teachers in the sample instruct

somewhat different types of students which would result from grouping on some external criteria? These are all questions which need researching before much can be stated about the perceived differences between the classroom styles of the two sexes.

Differences were also observed between teachers who were categorized by years of experience. In general, teachers with six years or less experience were perceived as using less directive classroom styles. This probably reflected their more recent completion of teacher preparation programs. Teacher training programs have, in recent years, used new approaches and models. In some instances, these approaches have been designed to have a direct effect upon graduates. In other instances, the changes reflected a rotation of staff or the introduction of new resource and reading materials. Regardless of form, more recent graduates seemed to be less directive in their classroom style. These differences might also reflect the approaches of younger teachers to classroom style, or a combination of age and training.

The factor analysis of data provided a closer examination of major categories within the directive dimension of classroom style. Males and teachers with six or fewer years of experience were less directive on the classroom interaction mode. This mode included such characteristics as discussion, personal point of view, teacher role, and friendly behavior. Males were perceived as less directive on these characteristics than females, who were perceived in a somewhat more formal role. Also, less experienced teachers fit these characteristics as perceived by students more than experienced teachers. The control mode, including group work, class management, and adherence to behavior standards was less directive with men than women teachers and with more experienced rather than less experienced teachers. Again the male probably has a role definition permitting greater latitude in control and more experienced teachers have attained a control reputation which permitted greater latitude of behavior as perceived by students.

The SPOTS instrument has potential as a teacher feedback system in Hong Kong. Teachers who participated in the study were provided with individual and group profiles of their teaching style. They were able to compare their classroom style with the sample of Hong Kong teachers of geography. They were also able to make inferences regarding areas of agreement and disagreement between perceptions of their own classroom style and perceptions held by students. This feedback, along with necessary instructional assistance, could encourage a teacher to improve their classroom style. The use of the SPOTS generated considerable interest in examining and analyzing perceptions of classroom style.

TABLE 1
HONG KONG: MEANS AND STANDARD DEVIATIONS

Variable	Mean	Standard Deviation
1	5.08	2.16
2	4.75	2.01
3	4.03	1.90
4	4.45	2.44
5	5.27	1.98
6	4.58	1.80
7	4.51	2.15
8	4.48	1.62
9	5.06	1.78
10	5.62	1.79
11	3.62	2.16
12	4.07	2.24
13	4.58	1.75
14	4.76	2.02
15	5.68	1.96
16	5.06	1.87
17	6.05	2.22

TABLE 2
SPOTS: FREQUENCY COUNTS & PERCENTAGES

Variable	SCALE									
	0*	1	2	3	4	5	6	7	8	9
1	8 0.51	62 3.95	174 11.08	199 12.68	144 9.17	316 20.13	229 14.59	175 11.15	191 12.17	72 4.59
2	4 0.25	65 4.14	161 10.25	262 16.82	179 11.40	381 24.28	199 12.68	139 8.85	120 8.15	50 3.18
3	7 0.45	129 8.22	216 13.76	332 21.15	295 18.79	268 17.07	158 10.06	77 4.90	58 3.69	30 1.91
4	3 0.19	149 9.49	216 13.76	348 22.17	190 12.10	152 9.68	150 9.55	119 7.58	88 5.61	155 9.87
5	2 0.13	73 4.65	74 4.71	97 6.18	283 18.03	361 22.99	270 17.20	181 11.53	133 8.47	96 6.11
6	5 0.32	64 4.08	159 10.13	241 15.35	255 16.24	341 21.72	302 19.24	122 7.77	56 3.57	25 1.59
7	49 3.12	100 6.37	175 11.15	324 20.64	192 12.36	245 15.61	174 11.08	158 10.06	69 4.39	82 5.22
8	2 0.13	90 5.73	107 6.82	193 12.29	324 20.64	435 27.71	326 20.76	52 3.31	21 1.34	20 1.27
9	12 0.76	54 3.44	79 5.08	113 7.20	299 19.04	449 28.60	257 16.37	165 10.51	85 5.41	57 3.63
10	7 0.45	29 1.59	49 3.12	73 4.65	239 15.22	398 25.35	336 21.40	183 11.66	145 9.24	115 7.32
11	8 0.51	180 11.46	306 19.49	591 37.64	91 5.80	82 5.22	55 3.50	114 7.26	94 5.99	49 3.12
12	33 2.10	193 12.29	194 12.36	387 24.65	208 13.25	154 9.81	96 6.11	169 10.76	75 4.78	61 3.89
13	9 0.57	74 4.71	118 7.52	230 14.65	301 19.17	361 22.99	310 19.75	92 5.86	42 2.68	33 2.10
14	16 1.02	86 5.48	129 8.22	242 15.41	236 15.03	318 20.25	232 14.78	160 10.19	83 5.29	68 4.33
15	20 1.27	51 3.25	41 2.61	48 3.06	293 18.66	362 23.06	202 12.87	227 14.46	190 12.10	136 8.66
16	10 0.64	57 3.63	74 4.71	97 6.18	415 26.43	367 23.38	215 13.69	143 9.11	109 6.94	83 5.29
17	9 0.57	52 3.31	73 4.65	100 6.37	136 8.66	257 16.37	236 15.03	223 14.20	215 13.69	269 17.13

* No response.

TABLE 3
SUMMARY OF DIFFERENCES BETWEEN MEAN VALUES
BY TEACHER'S SEX

Variable	Males		Females	
	Mean	SD	Mean	SD
1	4.93	2.17	5.26*	2.20
2	4.66	1.99	4.88	2.08
3	4.05	1.92	3.95	1.90
4	4.70*	2.54	4.01	2.23
5	5.28	2.03	5.24	1.91
6	4.51	1.89	4.67	1.70
7	4.20	2.28	4.29	2.22
8	4.64*	1.66	4.20	1.54
9	4.96	1.84	5.12	1.79
10	5.74*	1.83	5.34	1.77
11	3.66	2.14	3.51	2.22
12	4.16*	2.30	3.68	2.23
13	4.72*	1.74	4.27	1.80
14	4.47	2.02	5.11*	2.09
15	5.80*	2.06	5.29	1.99
16	4.90	1.96	5.25*	1.81
17	6.30*	2.19	5.54	2.30

* Significant difference ($\leq .05$ probability) toward non-directive behavior in favor of this group.

TABLE 4
SUMMARY OF DIFFERENCES BETWEEN MEAN VALUES
BY TEACHER'S EXPERIENCE

Variable	<6 Years Experience		>6 Years Experience	
	Mean	SD	Mean	SD
1	5.08	2.30	5.10	2.11
2	4.91*	2.06	4.58	1.98
3	4.16*	1.95	3.89	1.87
4	4.79*	2.53	4.21	2.36
5	5.45*	2.07	5.16	1.92
6	4.49	1.95	4.60	1.75
7	4.48	2.23	4.30	2.30
8	4.62*	1.76	4.33	1.52
9	4.06	1.81	4.95	1.83
10	5.76*	1.80	5.43	1.81
11	3.47	2.07	3.64	2.19
12	4.13	2.33	3.90	2.26
13	4.55	1.91	4.52	1.69
14	4.55	2.14	4.76	2.02
15	5.33	2.24	5.78*	1.92
16	4.56	1.76	5.32*	1.95
17	5.97	2.30	6.07	2.24

* Significant difference ($\leq .05$ probability) toward non-directive behavior in favor of this group.

TABLE 5
FACTOR GROUPINGS FOR HONG KONG DATA

Factor	Variable Number
1. Cognitive Orientation	1, 2, 3, 6, 8, 9, 11, 15
2. Interaction Mode	5, 7, 12, 13
3. Control Mode	4, 10, 14, 16, 17

TABLE 6
FACTOR SCORES: TEACHER SEX

	Male		Female	
	Mean	SD	Mean	SD
Factor 1. Cognitive Orientation	36.94	6.79	37.29	7.08
Factor 2. Interaction Mode	18.56*	5.62	17.22	5.07
Factor 3. Control Mode	27.29*	5.96	25.87	5.95

* Significant difference ($\leq .05$ probability)

TABLE 7
FACTOR SCORES: TEACHER'S EXPERIENCE

	<6 Years Experience		>6 Years Experience	
	Mean	SD	Mean	SD
Factor 1. Cognitive Orientation	37.23	7.90	36.70	7.06
Factor 2. Interaction Mode	18.85*	5.62	17.57	5.35
Factor 3. Control Mode	25.28	6.44	26.26*	5.67

* Significant Difference (probability $\leq .05$)

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STUDENT PERCEPTION OF TEACHER STYLE:
THE EFFECTS OF THE HIGH SCHOOL GEOGRAPHY PROJECT

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ABSTRACT

The Student Perception of Teacher Style (SPOTS) was administered to the students of HSGP and social studies teachers. The data suggested that the HSGP curriculum encouraged teachers to assume a less directive classroom instructional style. The effects of a specially designed inservice project for HSGP and social studies teachers were analyzed. Contrary to expectations, formal preparation in the use of HSGP actually changed teacher style toward a directive orientation. However, HSGP was credited with maintaining a generally non-directive classroom style among teachers when compared to a more traditional textbook approach to instruction.

PERCEPTION PAR LES ÉCOLIERS DU MODE D'ENSEIGNEMENT:
EFFETS DE PROJETS DE GÉOGRAPHIE AU NIVEAU DU LYCÉE:

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RÉSUMÉ

Le test de perception du mode d'enseignement par les élèves (SPOTS) fut donné aux élèves de H.S.G.P. (classe-pilote de lycée employant un projet de géographie donné) et aux enseignants d'études sociales. Les éléments d'information obtenus suggéraient que le programme d'études de H.S.G.P. encourage les enseignants à adopter un mode d'enseignement d'orientation moins rigide - les effets d'un projet spécialement préparé en fonction du H.S.G.P. et pour les enseignants d'études sociales sont analysés dans l'article. Contrairement à ce à quoi on s'attendait, la préparation explicite de l'emploi du H.S.G.P. changea en fait le mode d'enseignement pour le diriger vers une voie plus délimitée. Cependant, il fut constaté que le H.S.G.P. maintenait en général un mode d'enseignement plus libre s'il était comparé aux méthodes traditionnelles d'enseignement basé sur un livre de textes.

ВОСПРИЯТИЕ СТУДЕНТАМИ СТИЛЯ ПРЕПОДАВАТЕЛЯ: РЕЗУЛЬТАТЫ
ПРОЕКТА ПО ГЕОГРАФИИ В СРЕДНЕЙ ШКОЛЕ.

И. Столтман
Соединённые Штаты

ВЫДЕРЖКА

Ученики средней школы и преподаватели естественных наук были снабжены вопросниками "SPOTS" (Восприятие студентами стиля преподавателя). Данные указывают, что учебный план проекта географии в средней школе, поощрял учителей придерживаться менее директивного стиля в преподавании. Результаты особо созданного рабочего проекта по географии для учеников и учителей средней школы, были проанализированы. Вопреки ожиданиям, подготовленность к работе по проекту, в действительности, изменила стиль преподавателя в сторону директивной ориентации. Однако, в сравнении с более традиционным методом преподавания, а именно - придерживаться учебника, проект географии в средней школе проявился в отсутствии директивности в стиле преподавания.

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Student Perception of Teacher Style:
The Effects of the High School Geography Project

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Studies of classroom instructional styles, educational environments, and pedagogy are not new to educational research. In the United States, for example, there has been a steady development of research related to such topics since the beginning of the 20th century. The general trend in the research included an initial focus upon personal traits of the teacher and success in teaching (Book, 1905, Morris, 1928), with a later focus upon objective teacher style analysis (Schutte, 1926; Hart, 1934). More recently a number of research based instructional analysis systems have emerged. The article by Steinbrink in this monograph describes several of those techniques in detail.

The objective of this research was to study the differences in teacher classroom style between groups of teachers using different curricula. One of the curricula selected was the High School Geography Project (HSGP), developed by the Association of American Geographers. The comparison curriculum was a traditional textbook approach to geography and social studies instruction. These two curricula were especially well suited since a teacher change strategy had been designed as a component of HSGP (Helburn, 1972). It was believed the curriculum development of HSGP, if effective, would have implications for altering teaching methods and curriculum design in geography as well as numerous other content areas (White, 1970).

Several factors were predominate in the selection of HSGP for the research. First, HSGP represented a departure from the traditional textbook approach to geography instruction. It was inquiry based in philosophy and incorporated media, research tools, simulation, role playing, and various group and individual tasks as part of its pedagogy. In taking a suggestion from Gilbert White (1970), the researcher attempted to analyze the "impact of Project materials and processes upon the attitudes and methods of educators". Difference in teacher classroom style might reflect one impact of HSGP on teacher behavior.

Second, HSGP provided the researcher with a distinct pedagogical approach recently imposed upon a rather uniform educational system in secondary education. Teachers and students studying HSGP had, in general, been doing so for fewer than five years by 1975. This transition suggested to the researcher that teachers incorporating HSGP in their classes had, in all probability, followed a more traditional approach to geography instruction prior to HSGP. To contrast with HSGP, the researcher selected a curriculum model employed by teachers who had continued their traditional textbook approach to geography and social studies education.

Third, the researcher was fortunate to participate in three HSGP summer inservice implementation projects for secondary teachers of geography and social studies. The teacher participants thus provided a sample of research subjects.

Research Design

The research design for the study was a comparative survey. Classrooms were identified and the data collection procedure was imposed. This design was acceptable for the descriptive survey intended, although it lacked the more rigid controls essential to predictive research. It was the researcher's judgment that the situation in which the data collection procedure was introduced represented very nearly the instructional environment for most secondary school teachers and students who followed either an HSGP or textbook approach to geography and social studies. Geography and social studies, for practical purposes, are frequently used synonymously in the United States since geography is one component of the more broadly based social studies.

The teacher style analysis technique selected was the Student Perception of Teacher Style (SPOTS) (Tuckman, 1970). It relied upon student feedback rather than specially trained observers to describe teacher style. The SPOTS instrument is described in detail by Steinbrink in this monograph. It was used in the form it appears as Appendix A.

The basic research design reflected the application of the SPOTS as the research instrument. There are generally three means by which teacher classroom style data are collected: 1) a trained outside observer visits the classroom; 2) the teacher's students; or 3) personal reflections by the teacher. The latter may require sophisticated audio-visual recording equipment, but did not in the case of this study. The researcher used the latter two because of the wide spatial distribution of the sample and the lack of adequate funds for training observers at each teacher's school location or providing travel and time for a team of observers to make visitations.

A second research design consideration focused upon the type of data to be collected. There were two types under consideration: 1) the collection of data reflecting actual teacher style, or 2) the collection of data reflecting perceived teacher style. The second approach was selected. On theoretical grounds, the study of perceived teacher style was more promising since it entailed a relativistic, phenomenological reaction to the objective quality of external stimuli. In contrast, actual teaching style entailed indexing direct observations in an absolute, objective fashion. The researcher's contention was that the students' perceptions of teacher behaviors and the resultant classroom environment are more important and easier to interpret in teacher feedback than objective data which indexes teacher style and classroom environment.

Research Sample

The research sample included two groups: teachers and students. One hundred nineteen secondary teachers of geography and social studies were in the teacher sample. All were participants in HSGP implementation projects during the summer of 1972, 1973, or 1974. Their selection as participants was made from a pool of approximately four hundred applicants based upon these criteria: 1) educational training; 2) years of teaching experience; 3) commitment to curriculum innovation; and 4) academic record. The sample reflected, in the researcher's opinion, an outstanding group of secondary social studies and geography teachers.

Control of teacher characteristics in addition to the general selection criteria was not feasible. Therefore, the teachers in the sample were grouped into categories by descriptive commonalities. For the purposes of this report, these included HSGP teachers and social studies teachers depending upon instructional responsibilities prior to and following the implementation projects. Thus, the subsamples used in analysis were consistently smaller than the total number of teachers who participated. The variations in total number of teachers reflected the lack of total control over what the teacher instructed prior to and following the implementation project. Furthermore, the categorization of the sample into HSGP and social studies did not imply that HSGP had not appeared as part of the social studies curriculum in the United States. Rather, the intention was descriptive in that teachers and students in the social studies group were not yet implementing HSGP as part of their curriculum.

The student sample was similarly categorized into those students studying HSGP and those enrolled in a more traditional textbook approach to geography and social studies. Approximately 20,000 students participated in teacher feedback by responding to the SPOTS, i.e., 10,000 each on pre and post administrations. They ranged from seventh to twelfth grade, i.e., 13 to 18 years of age, with the concentration at the tenth grade, i.e., 15 to 16 years of age. By virtue of number and geographical distribution, the sample of students probably reflects the general population of secondary students in the United States.

Treatments and Data Collection

The curriculum materials employed by the teacher at the time the SPOTS was administered constituted the treatment. Since the data collection was imposed upon the existing classroom setting, the treatment descriptions were based upon the information provided by the teacher.

The social studies teachers were generally applying an instructional mode centered around a textbook. While some texts were described as inquiry oriented, the instructional style was

the teacher's prerogative. The textbooks were not designed in such a way as to necessitate teacher style change, as was designed in HSGP (Helburn, 1972). The social studies content ranged from multi and interdisciplinary social science to political science, history and geography. None of the teachers in the social studies sample were employing curriculum materials similar to HSGP.

The HSGP teachers were similar in training and experience to the social studies group. The principal difference was their use of HSGP. The HSGP units were inquiry oriented in design and recommended implementation. It was difficult, but not impossible, for HSGP to be implemented in a traditional textbook mode.

Data were collected prior to teacher participation in the HSGP implementation projects. These data were used as feedback and became a component of the projects. The SPOTS were again administered on a post basis four to six months after the projects. The data were thus suitable for comparisons within and between subsamples on a pre and post administration.

Analysis of Data

The teachers in the sample were requested to respond to the SPOTS. This provided the researcher a data base from which to compare teacher and student perceptions of classroom style. Three basic differences in the means for the data were expected. First, it was expected that HSGP teachers would score somewhat higher than social studies teachers, thus suggesting a less directive, i.e., non-authoritarian, style. Second, it was expected that HSGP teachers and students would be in closer agreement regarding perception of teacher style than were social studies teachers and their students. This effect could be attributed to HSGP. Third, it was expected that HSGP students would perceive their teachers' classroom style to be less directive than the style perceived by social studies students. Such a difference would again suggest the effects of HSGP (Table 1).

Inspection of the data (Table 1) reveals several general differences between HSGP and social studies teachers. The teachers had responded to the SPOTS, describing their perceptions of their classroom style. HSGP teachers perceived their classroom style as somewhat less directive than did traditional textbook teachers on eleven of the seventeen variables. They perceived their classroom style as more directive on only three variables, and there was little difference between the two groups on three variables. These trends suggest that HSGP had an effect on teachers which resulted in a perceived classroom style which was generally less directive than that of their social studies colleagues.

Students followed that general trend, with HSGP students perceiving their teachers as less directive on nine variables. On four variables the social studies teachers were perceived as less directive, and very slight differences were observed between the means on four variables.

When compared to their social studies peers, HSGP students perceived their teachers' classroom styles to:

- 1) place greater interest on getting ideas across;
- 2) permit the students to make more decisions about learning;
- 3) permit a freer exchange of ideas and questions;
- 4) permit participation by students in decisions regarding tests, grades, course plans, and group projects;
- 5) permit a more open interaction regarding learning, including emotions;
- 6) permit a friendly relationship more of the time;
- 7) place more emphasis upon long term projects rather than daily assignments; and
- 8) place more emphasis upon group work.

While not statistically analyzed, these empirical data do favor HSGP teachers in maintaining a classroom style which is somewhat less directive in orientation than the styles of their social studies counterparts. The perceptions of students are generally in agreement with the teacher data. The differences between the various means may appear small, or even insignificant to the observer. Keep in mind, however, that rather small differences on the SPOTS scale may represent quantum leaps by teachers who are intent upon changing their classroom style. These data simply reflect the changes induced through curricula, i.e., HSGP, without any emphasis for change from other external sources.

The teacher subjects in the research project each participated in a six week inservice implementation project. The objectives of the project included: 1) familiarizing teachers with the inquiry mode of HSGP; 2) involving teachers in micro teaching to develop competencies in using HSGP; and 3) using the pre project SPOTS for identifying areas of desired change in teacher classroom style. The SPOTS questionnaire was administered on a pre and post basis by all teachers. Seventeen teachers in the sample were implementing HSGP prior to and following the inservice project. Forty teachers were categorized as using a similar textbook approach both before and after the inservice. These two subsamples were thus compared to determine the effects of the implementation project (Table 2).

It was expected that all participants in the inservice project would, in general, develop a less directive classroom style. The data suggested that such a change did not occur. Instead, changes in perception of teacher style were relatively small, with only two variables, both in the HSGP sample, changing significantly. Both changes were toward a more directive classroom style.

There were four significant differences between the HSGP and social studies teacher groups. These were on variables 1, 14, 15, and 16. These differences suggested that HSGP teachers maintained a less directive classroom style than teachers employing a more traditional textbook approach. In addition, three additional variables, i.e., 2, 4, and 17, demonstrated the tendency of HSGP teachers to maintain a less directive classroom style when compared to the social studies sample.

These data portray the difficulties in initiating teacher change experiences. Despite the direct approach to classroom style in the implementation project during the six weeks, changes were often very slight and often in the unexpected direction. These data added evidence to the notions held by Tuckman (1976) that behavioral change in teacher style is a slow, deliberate process. The effects of HSGP alone appeared to be greater on teacher style than was the intensive implementation workshop.

A second consideration was that the use of HSGP during the pre project period had already affected the major changes in classroom style. Perhaps the probability that any additional non-directive teacher change due to inservice was considerably reduced. In short, the teachers were as non-directive as possible under the educational system in which they functioned.

In order to investigate the latter possibility, sub samples were selected which permitted analysis of those conditions. Teachers were divided into the following groups: 1) those teaching HSGP prior to the implementation project, but assigned a traditional textbook approach after the project; and 2) those employing a traditional textbook approach prior to the implementation project, but assigned HSGP after the project. The perceptions of students viewing the teachers in the different roles were analyzed (Table 3).

The expected effect was: 1) that teachers who changed from HSGP to a traditional textbook curricula would be perceived as more directive in classroom style, and 2) teachers changing from a traditional textbook curricula to HSGP would be perceived as less directive in perceived classroom style. Significant interactions within the analysis model suggested when such a phenomenon took place. There were eight variables which displayed a significant interaction (Table 3). These interactions indicated that the alterations in the perceptions of teacher style were consistent with those expected.

Further inspection of the data (Table 3) revealed that teachers who changed from a traditional textbook approach to HSGP were perceived by their students as less directive in classroom style on eleven variables. Despite the fact that several of those changes were not statistically significant, they did suggest the combined effects from implementation of

HSGP and participation in the inservice project. Similarly, teachers changing from HSGP to a traditional textbook approach were perceived as more directive on fourteen variables. Again, some of the changes were not statistically significant, but did reflect the trend toward more directive behavior. The reader should keep in mind that perceptions of classroom style associated with the traditional textbook curriculum also reflected the general tendency of HSGP teachers to become more directive as a result of the inservice experience.

Conclusions and Discussions

The HSGP materials were designed with the intentions of changing teacher classroom behavior (White, 1970; Helburn, 1972). Insofar as the directive-non directive dimension of teacher classroom style reflects one aspect of behavior, the data from the SPOTS suggested that the HSGP curriculum had effectuated change. HSGP teachers, in general, were perceived by their students as incorporating a less directive classroom style than their social studies counterparts.

Contrary to expectations, a specially designed inservice project to prepare teachers for HSGP implementation had the effect of making HSGP teachers somewhat more directive in classroom style. This may be explained by two considerations. First, teachers may have been adequately guided toward the inquiry focus of HSGP by the materials themselves and by the teacher's manuals. In such a setting, which describes the pre inservice condition of those teachers using HSGP, the teacher was inquiring along with the students in order to comprehend the material. Content, techniques, and materials all may have been new. Thus, the students perceived their teacher as a fellow participant in discovering how to utilize HSGP rather than a manager directing its use.

Second, the inservice implementation project focused upon the use of the materials, necessary familiarization, and materials management problems which might be encountered by the teacher. It was perhaps this focus which resulted in a more directive style by the HSGP teachers following the inservice. Students may have no longer perceived the teacher as a participant in learning. Rather, the newly defined teacher role was that of directing the implementation of HSGP by students.

This is a question of major significance in the design of inservice experiences for teachers. Perhaps another component of the project would have been required to offset the effects observed in this study. HSGP teachers might have required guidance in how to maintain a non-directive classroom style as a participant in learning while implementing the curriculum. The researcher believes a carefully designed component of this nature might have enabled the teacher to continue a non-directive profile in the classroom.

The data collected in this research project were also used for teacher feedback. This feedback was provided on an individual and a group basis. Group data were analyzed in order to define the parameters of teacher classroom style for the sample. Individual teachers then inspected the data and compared their classroom style profile with that of the group. Change strategies in relation to particular variables were designed. There were no allusions or considerations for using the SPOTS data in an evaluative fashion. It was simply for descriptive purposes and teacher feedback.

The general question of teacher feedback deserves considerable attention in teacher training models. If change is to be encouraged, then it should be controlled, insofar as it affects teacher style and the classroom environment.

It is likely that curriculum materials modeled after HSGP or which employ similar teacher change strategies will indeed affect teacher classroom style. This has important ramifications as similar projects are contemplated and initiated in various countries. Careful analysis of the teacher change components of HSGP might provide curriculum designers and developers with a paradigm which has undergone considerable implementation, investigation, and research.

Other applications of the SPOTS feedback data are more closely related to teacher training. These data can be used to establish a contemporary profile of teachers who may eventually use newly developed materials. The curriculum developer might therefore hypothesize the expected outcomes, assess the current status, i.e., in this case teacher style, and subsequently determine the strategy for development.

This model would be close to training by prescription. It also seems certain that teacher interaction with curricula results in relatively distinct classroom instructional styles. Teacher training models might be implemented which take into account certain teacher style variables as part of the pre-service and inservice experiences. It seems such an approach using teacher feedback in several perspectives might permit considerable advancement regarding the science of teaching.

TABLE 1
PERCEPTION OF TEACHER STYLE BY SUBSAMPLE

Variable	HSGP Teachers		Social Studies Teachers		HSGP Students		Social Studies Students	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	6.72	1.13	6.57	1.55	5.43	1.80	5.32	1.82
2	4.83	1.25	4.00	1.83	4.69	2.11	4.38	2.22
3	6.33	1.41	5.72	1.56	5.71	2.05	5.80	2.15
4	6.61	1.54	5.90	1.42	6.29	1.97	6.06	2.03
5	6.41	1.76	6.35	1.34	5.85	1.94	5.81	1.95
6	6.12	1.65	6.66	1.45	5.18	1.75	5.38	1.77
7	3.61	2.20	3.62	1.86	3.75	2.07	3.71	2.12
8	5.72	0.96	5.76	1.55	5.09	1.63	5.21	1.66
9	5.67	1.24	5.00	1.39	4.98	1.84	4.70	1.92
10	5.72	0.83	5.52	1.24	5.44	1.74	5.58	1.79
11	3.56	1.58	4.07	1.44	3.99	2.36	4.08	2.50
12	5.56	1.15	5.28	1.53	4.90	2.13	4.69	2.16
13	4.89	0.96	4.66	1.37	4.64	1.78	4.58	1.86
14	5.00	1.85	5.59	1.48	5.31	2.33	5.15	2.39
15	5.67	1.24	5.18	1.47	5.62	1.96	5.01	2.09
16	6.33	1.46	5.07	1.58	6.21	1.84	4.98	2.11
17	6.47	1.62	6.14	2.05	6.31	2.35	6.45	2.26

TABLE 2
THE EFFECTS OF AN HSGP INSERVICE IMPLEMENTATION
PROJECT ON TEACHER CLASSROOM STYLE

Variable	HSGP Teachers		Social Studies Teachers	
	Pre SPOTS Mean	Post SPOTS Mean	Pre SPOTS Mean	Post SPOTS Mean
1	5.75*	5.74*	5.27*	5.40*
2	4.86	4.76	5.29	4.45
3	6.05	5.67	5.71	5.77
4	6.39	6.20	5.98	5.99
5	5.91	5.74	5.74	5.72
6	5.27	5.21	5.22	5.30
7	4.02	3.53	3.73	3.69
8	5.16	4.82	5.06	5.03
9	4.86	4.90	4.80	4.87
10	5.49	5.47	5.56	5.36
11	4.17**	3.58**	3.81	3.76
12	4.93**	4.31**	4.68	4.55
13	4.89	4.55	4.53	4.52
14	5.35*	5.26*	4.76*	4.56*
15	5.63*	5.92*	5.07*	5.10*
16	6.54*	6.56*	4.99*	5.12*
17	5.97	6.44	6.38	6.28

* Significant difference (probability $\leq .05$) between groups.
 ** Significant difference (probability $\leq .05$) within groups.

TABLE 3
PRE-POST SPOTS DATA FOR TEACHERS WHO CHANGED CURRICULA

Variable	Group 1		Group 2	
	Pre (Social Studies) Mean	Post (HSGP) Mean	Pre (HSGP) Mean	Post (Social Studies) Mean
1*	5.28	5.66	5.79	5.67
2*	4.42	4.60	4.49	4.29
3	5.88	5.74	5.78	5.76
4*	6.12	6.34	6.99	6.54
5	5.84	5.71	6.31	5.96
6	5.37	5.32	5.03	5.07
7*	3.52	3.71	3.77	3.57
8	5.06	5.08	4.45	4.56
9*	4.62	4.90	4.78	4.73
10	5.40	5.59	5.19	5.40
11	4.21	3.80	3.63	3.41
12	4.50	4.46	5.13	4.82
13	4.58	4.54	4.37	4.26
14*	5.15	5.47	4.89	4.77
15	5.41	5.44	5.74	5.52
16*	5.69	6.27	6.52	5.46
17*	6.11	6.65	6.66	5.14

* Significant Interaction (prob $\leq .05$)

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AN INTERNATIONAL PERSPECTIVE ON TEACHER CLASSROOM STYLE RESEARCH

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The author offered a general analysis of the teacher classroom style research included in this monograph. Applications of the SPOTS as a teacher feedback technique were suggested, as well as several teacher change strategies. The use of research techniques similar to those in this monograph were discussed in relation to paradigms for teacher training. The research reports were described in relation to the international perspectives on education expressed in the UNESCO publications "Learning to Be" and "Education on the Move".

UN APERCU INTERNATIONAL DES RECHERCHES SUR LE MODE D'ENSEIGNEMENT DES INSTITUTEURS

J. Stoltman
Etats-Unis

L'auteur présente une analyse générale des recherches sur le mode d'enseignement qui est ci-inclus. Certaines applications de SPOTS en tant que technique de ressources de "feedback" pour l'enseignant sont suggérées aussi bien que plusieurs stratégies de changement pour l'enseignant. L'emploi de techniques de recherches semblables à celles qui sont présentées dans cette monographie, est discuté et comparé aux modèles pédagogiques traditionnels.

La monographie discute également les compte rendus de recherches relativement aux perspectives internationales de l'enseignement, telles qu'elles sont présentées dans les publications de l'unesco: "Apprendre à être" et "L'enseignement en action."

МЕЖДУНАРОДНЫЕ ПЕРСПЕКТИВЫ ИССЛЕДОВАНИЯ ПОВЕДЕНИЯ
ПРЕПОДАВАТЕЛЯ В КЛАССЕ.

И. Столтман
Соединённые Штаты

ВЫДЕРЖКА

Автор предлагает общий анализ исследования стиля преподавания, который включён в эту рукопись. Предлагается применение показаний "SPOTS" (Восприятие студентами стиля преподавания), оповещающая результаты исследования учителям, а также предлагается несколько других методов изменения манеры преподавания. Применение исследовательских методов подобных тем, которые содержатся в этой рукописи, рассматривается в их отношении к примерам обучения учителей. Данные исследования рассматриваются в их отношении к международным взглядам на образование, выраженных в печатных трудах Организации Объединённых Наций по вопросам просвещения, науки и культуры (ЮНЕСКО): 1. "Учиться Жить" (Learning To Be), 2. "Образование в движении" (Education on the Move).

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An International Perspective on Teacher Classroom Style Research

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Is teaching a science or an art? Or, is it a combination of both? Research studies have established parameters for teacher behaviours and teacher student interaction. But, underlying all such research is the fact that the individual teacher's and student's approaches to the educational setting are unique. The same syllabus and the same textbook used by different teachers may be perceived differently by different classes. Student perception of teacher style research does not resolve this problem. Rather, it provides a scientific, or if you prefer, a quasi scientific approach to collecting data about the nature of teacher classroom behaviour through the eyes of the students. These data assist in establishing parameters, including baselines, from which strategies for change may be initiated.

It is the objective of this paper to address four general implications of the SPOTS research reports in this monograph: 1) the role they suggest for international inservice and pre-service teacher training in geography; 2) the identification of parameters of behavior and magnitude of effect; 3) assisting the individual teacher with a change strategy; and 4) designing and adapting analysis systems for particular geographical and professional settings.

International Perspectives

The educational environment, i.e., authoritarian, democratic, and *laissez-faire*, have been topics of numerous studies. The internationally recognized research of Kurt Lewin has indicated that a permissive and self directive environment tended to produce the best results for development and learning. Such an environment, it was suggested, also facilitated interaction between pupils and teachers and promoted the development of reciprocal and multilateral communications (UNESCO, 1972).

The theoretical basis for the Student Perception of Teacher Style (SPOTS) provided data which suggested the degree to which teacher groups and individual teachers behaved in either authoritarian (directive) or non-authoritarian (non-directive) modes. Assuming the research by Lewin was valid and the data provided by the SPOTS was reliable, both supported by scientific evidence, then general relationships between directive and non-directive teacher behavior in the research reports and learning might be extended. For example, it might be postulated that learning by students was generally enhanced in those situations where teachers were perceived to use a non-directive style. Although the data did not permit actual documentation for this

position, such logical implications were apparent. Therefore, application of the SPOTS research might entail the assessment of individual or groups of teachers on the directiveness dimension and, if necessary, formulate a prescription which theoretically would produce less directive behavior by teachers and enhance learning by students.

Similarly, UNESCO (1972) suggested the need for a general restructuring of classroom pedagogy toward non-directive, i.e., non-authoritarian, behavior by the teacher. The new designs for classroom instruction were reflected in suggestions concerning group pedagogy, institutional pedagogy, modification of teacher role, and the learner's place in school life. In essence, all of these ideas suggested that teaching was changing from the authoritative delivery of knowledge to a combination of diagnosis, motivation, and management of the learning environment.

In *Learning to Be* (UNESCO, 1972), the anticipated effects upon students from changes in pedagogical structure are expressed. These effects, it seems, might lead to substantial alterations in the way teachers are trained to teach. The book states, "Teaching, contrary to traditional ideas and practice, should adapt itself to the learner; the learner should not have to bow to pre-established rules for teaching" (UNESCO, 1972).

However, the important question of the difference between the perceived and the real world of the classroom remains. The rules of teaching may change, but the implementation of those rules through pedagogy and methodology might continue to promote an authoritarian atmosphere. The plans and roles of the learners and their perceptions of the education environment are essential criteria in restructuring the aim of an educational system. Research and data collection methods similar to those utilized in the SPOTS studies might permit a careful monitoring of the match between student perceptions, teacher perceptions, and actual practice. As stated in *Learning to Be*:

It should be made a principle to centre educational activity on the learner, to allow him greater freedom.... Even if the learner has to accept certain pedagogic and socio-cultural obligations as to subject matter and methods, these should still be defined more in terms of free choice, of psychological propensities and drives among learners than hitherto (UNESCO, 1972).

Pedagogical research and curriculum development which focus upon teaching style alteration have numerous implications. It has potential to lead to the direct application of theory to the needs of education; to result in the emergence of a prototype program which would employ systematic feedback of a practical nature. Several of the instruments reviewed by Steinbrink in this monograph, and particularly the SPOTS, are of this nature.

The use of these instruments for feedback will undoubtedly affect pedagogical methods. Careful analyses of feedback have the potential to make educational activity more democratic.

Parameters of Teacher Behavior and Magnitude of Change

The spots research studies in this monograph report, for the most part, general descriptive data regarding student perceptions of teacher classroom styles. This approach to reporting enables the researcher to identify the parameters of teacher style behaviour expected in the population. Due to sampling error and other constraints of limited research, the application of conditions within the observed sample to a larger population must be treated with caution. Nonetheless, the researcher has established a baseline of data, or information, not known prior to the research.

Sample size is an important aspect of the SPOTS research. When the size of the sample was adequate, various criteria were used to divide the sample into subgroups. This permitted analysis of differences within the sample which suggested slightly different parameters of behaviour for different subgroups. It was not very important, for example, that teachers with fewer than a certain number of years teaching experience were less directive than teachers with a greater number of years experience. The more important consideration was when teachers with those particular criteria, i.e., experience, sex, training, etc., participated in a change strategy. The differences seemed to necessitate slightly different types of intervention in order to initiate change. For example, teachers with fewer than six years experience might employ a less directive classroom style than colleagues with more experience. This might reflect age, training, or any number of conditions. The data suggested, however, that they were more receptive to a non-directive classroom style. It might take little additional encouragement for them to employ an even less directive classroom profile. On the other hand, the more directive colleague might need considerable assistance toward altering classroom style. The training, reassurance, and feedback of an inservice training program might have to overcome considerable resistance. Therefore, intervention might necessarily be differentiated between the two groups in order to achieve the same purposes. These types of decisions can be made only after the population or sample to be treated has been carefully analyzed.

A second consideration in analyzing the parameters of behavior exhibited by samples or subsamples was magnitude of difference and magnitude of change. For example, in statistical analyses similar to those incorporated in this monograph it is important to consider the magnitude of difference between groups. When the analysis includes the number of subjects or students in the sample, the researcher should consider a relatively high level of confidence statistically, i.e., the 95% level of

confidence, that differences do indeed exist. If the analysis incorporates means by teachers or classes in the sample and involves a relatively small number of subjects, i.e., ten or fewer, the statistical analysis should receive attention at the 70% level of confidence. The larger the sample, the smaller the actual difference need be to appear statistically significant. The researcher must carefully weigh all such considerations of significance before proposing prescriptions for change.

Similarly, the magnitude of change which might be expected from a sample must be judged accordingly. Altering teacher classroom style and the subsequent alteration of student perceptions of that style are not major leaps on the SPOTS scale. In fact, an alteration of one point or more on the scale should deserve critical examination. The tendency is for alterations in teacher style behavior to occur in small steps, with each step reinforced by appropriate feedback. Changes may be quantitatively small, but qualitatively important to the pedagogy of the teacher.

Change Strategies for the Individual Teacher

The change strategy which might employ the SPOTS begins at the very time the individual teacher is introduced to the notion of systematic student feedback. Researchers reporting SPOTS studies in this monograph have indicated teacher reaction ranged from reluctance to a great willingness to participate. A major responsibility of the researcher is to protect the research subjects. Therefore, teachers must be assured that the SPOTS is not an evaluative instrument. It does not suggest whether a teacher is doing a quality job or a poor job. The instrument is purely descriptive. It reveals how the respondent perceives the teacher on the directive dimension of classroom instruction. Until considerable data are collected regarding student performance and learning in conjunction with teacher classroom style, only theories of relationship may be speculated. This is the approach assumed by the authors of articles which employed the SPOTS in the monograph.

Using that non-threatening tact as protocol for entry into the classroom environment, the researcher must also prepare the teacher with a plan for reviewing the SPOTS data collected from students. The author has employed the following technique and found it highly acceptable. The SPOTS data are reviewed from five perspectives: 1) the teacher's self perception of classroom teaching style, 2) the students' perceptions of the teacher's style, 3) the comparison of different classes, i.e., by age, sex, subject matter, grade, materials, etc., which the teacher used in the SPOTS survey, 4) the comparison of the teacher's SPOTS data to a larger sample of teachers who are using similar materials or instructing similar students, and 5) the comparison of the teacher's self perception with the data provided by the students.

In the first instance, the teacher personally responds to the SPOTS. This provides a teacher style profile of perceived classroom behavior (Figure 1). The teacher might then reflect upon the profile with the following questions.

Is this the classroom style I want to maintain as a teacher? If not, what areas would I like to see changed? How might I begin to make those changes?

Next, the teacher's style profile as perceived by the students is reviewed (Figure 2). The teacher might then reflect upon the second profile. The mid value on the SPOTS scale is usually a good point to focus upon for the analysis of student perceptions. How many variables fall in each segment of the scale? What does this suggest regarding overall classroom teaching style? Is it directive or non-directive? Why do the students perceive me in this style? Am I surprised? Why? Should I make a commitment to alter my style? Which direction on the scale should I move? What types of things will enable me to make those changes?

At this level of analysis the teacher should be encouraged to make a commitment to change behavior. In some instances, however, the composite of the student responses do not provide adequate differentiation for the teacher. This can be overcome if the teacher is using different materials, texts or syllabuses for different units of instruction. Differences may be apparent if the teacher instructs different groups of students, or if the SPOTS forms are identified for sex, age, or by some other criterion of the respondent. The teacher may then compare student perceptions based on subsamples (Figure 3). How do perceptions of style differ between groups? Why might they differ? What behavior do I use in one group which makes style different from another group?

The teacher may also ask how they compare with other teachers who teach similar students or similar classes. A data base employing the results of several SPOTS surveys may provide the necessary comparison. The teacher can compare the mean ratings for the sample with the rating received from classes or groups of classes. These data provide several frames of reference (Figure 4). First, the teacher may be surprised that he is perceived as being less directive than the group, in general. This could curtail any motivation to change. On the other hand, the teacher may have a teaching style profile which is considerably more directive than that for the group. It may result in these types of questions. Why am I perceived as more or less directive than fellow teachers? What can I do to move toward the mean for the larger sample? Which teachers in the larger group might provide me with some assistance in changing classroom style?

A review of the data from the SPOTS is not normally adequate to motivate a teacher toward change. Rather, the teacher has to

recognize some degree of cognitive dissonance regarding the data. Did the data reflect something the teacher believed was inconsistent with perceptions, behaviors or attitudes about himself or about teaching. The sets of data best used for establishing that such dissonance exists are teacher's self perception of style and the perceptions of the teacher's style by the students (Figure 5).

The incongruity between teacher based and student based profiles usually results in a lack of internal consistency for the teacher. The teacher perceives himself to use a style quite discordant with the perceptions of the student. The data demonstrate to the teacher that the style he thought he was employing as a teacher is not how he was actually behaving, and the evidence from the students is indisputable. Two options are open to deal with the dissonance. One is for the teacher to change classroom teaching behavior. The second is to change perceptions of teaching style. The objective is to change teacher behavior, not alter the teacher's perceptions of teaching style. Behavior change in the classroom is the only way to alleviate the actual inconsistency which exists between teacher and students.

Assisting The Teacher with A Strategy for Change

The actual test of any system to enhance classroom instruction and promote student acquisition of knowledge is its application by the individual teacher. *How do teachers change their SPOTS?* Numerous pieces of information and data, ranging from the teacher's personality to school system structure, must be considered. One hazard, however, is that so much information enters the analysis system that it inhibits any plan toward changing teacher classroom style. These are considerations which the researcher working with inservice or preservice teachers must evaluate.

Planning a change strategy might entail using simple variables or groups of variables from the SPOTS. A particular variable, number sixteen for example (Appendix A), is a relatively easy condition to alter. The teacher who receives a directive rating, i.e., 1, 2, or 3, but aspires to receive a non-directive rating could carefully structure additional group or committee activities as part of the learning experience. Such work must be carefully planned to complement the syllabus or curriculum and not be haphazard simply to achieve a less directive rating. This kind of planning is quite critical to the systematic and planned alteration of teacher classroom style.

Other variables are more difficult to deal with in designing a change strategy. Variable three (Appendix A) presents a more complex problem. A teacher who views the classroom role as that of dispensing information pre-programmed according to a text, syllabus, or institutionalized lecture notes will, in all probability, receive a rather directive rating by students.

Altering the behaviour will require overcoming three basic beliefs by the teacher: 1) that curriculum is covering a specified amount of material in a specified amount of time, 2) that the syllabus, or curriculum, contains the only material or information relevant to learning; and 3) that students are to be viewed as recipients of, rather than the creators of knowledge and information.

This belief system poses a serious problem, since the students are accustomed to the directive behavior, thus unfamiliar with how to respond to a variation in teacher style. The teacher might attempt a change, encouraging discussion of some other matter or topic, only to meet with a total lack of response from the students. The result is that the teacher is reinforced that the prior profile, or being directive, is what the students prefer and need. The situation which emerges in this fashion is indeed unfortunate.

As an alternative, the teacher might pre-distribute some information about topics which are readily related to the syllabus, but not specifically a part of it. The class might be requested to review the materials and formulate opinions regarding their use, validity, and relationship to the syllabus, or relevancy to the environment of the student. With such a forewarning, the students are able to accommodate the discussion of other matters in the context of the course. The teacher thus will probably have a better experience than with the impromptu material. Also, the first component of a protocol for applying matters of concern beyond the syllabus has been developed. This degree of non-directive style by the teacher might help promote students and teachers in perceiving school as part of a life long learning procedure and not simply a quantity to be filled during a particular time.

While strategies for change can be designed for individual variables, attention might also be given to categories or groups of variables. It is important to note that less directive behavior on variable sixteen, for example, should be complemented by less directive behaviour on variable ten (Appendix A). Each component of the SPOTS contributes to the overall profile of the teacher. Therefore, to initiate change in one area should also cause change in another area. That being the case, the teacher might want to group variables together and concentrate upon changing sets or modes of classroom behavior. Groups of variables may be identified on the logic of their relationship in a particular setting and do not necessarily need to be statistically justified.

Suggestions for the Future

The reports in this monograph use the SPOTS in a research centered context, i.e., the researcher is the initiator of data collection and analysis. This need not be the case. It

is entirely feasible that a teacher or group of teachers might develop a professional inservice program designed to analyze and change teacher classroom style. Teachers not convinced of the importance of such an activity are invited to carry out a private analysis of their own teaching. It is unlikely, however, that the teacher who undertakes an analysis independently, unless highly motivated, will do much toward changing classroom instructional style. The motivation and reinforcement which result when teacher style change strategies involve a team of teachers surpasses the individual approach.

The team approach permits teacher change strategies to be monitored and analyzed from several different perspectives. For example, the SPOTS might be used in combination with one or more of the other techniques reviewed by Steinbrink in this monograph. The system would then permit a multi-faceted inservice or preservice development program for teachers. It would be valuable to incorporate entire secondary schools in experimental research to determine the effects of student feedback, and teacher style change upon student achievement. Perhaps then, the following long established educational relationships between teacher and student will be significantly altered.

Thus the relations between educator and educatee are the relations of a subject to an object, which means that the latter is the mere recipient of the contents of the knowledge of the former. The educator, he who knows, he who separates the art of teaching from the art of learning, is therefore always the educator of the educatee, while the latter is always the educatee of the educator. (UNESCO, 1975).

The center of gravity in the educational system is shifting from the teacher to the student. The research reported from the SPOTS studies places both teachers and students in the educational spotlight. The research was conducted in the classroom in touch with the everyday problems of teaching. The next step is to take the research findings back to the teaching profession, to the classroom, to the practical utility of the teacher. The teacher's new role in education implies a comprehension of current educational theory, psychology, new methods of teaching, and educational technology. The reports in this monograph suggest ways in which student feedback can help teachers meet those new role expectations.

Figure 1
Teacher Self Perception of Classroom Style

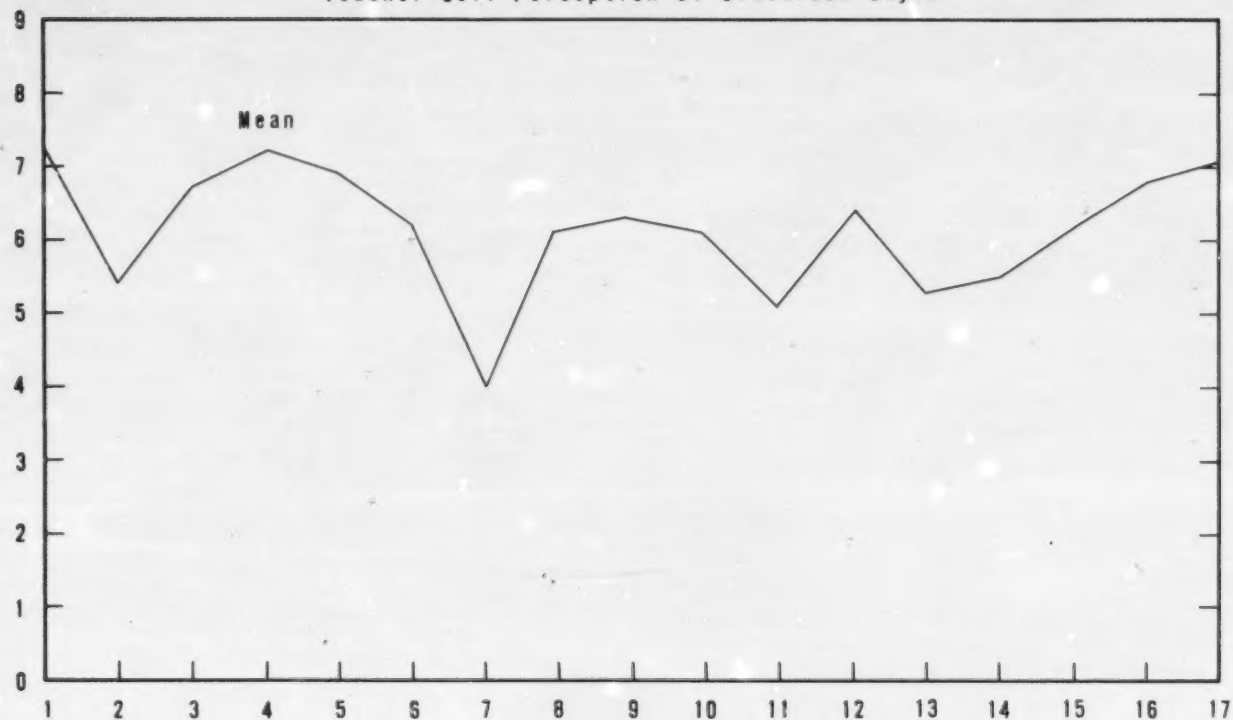


Figure 2
Student Perception of Teacher Style

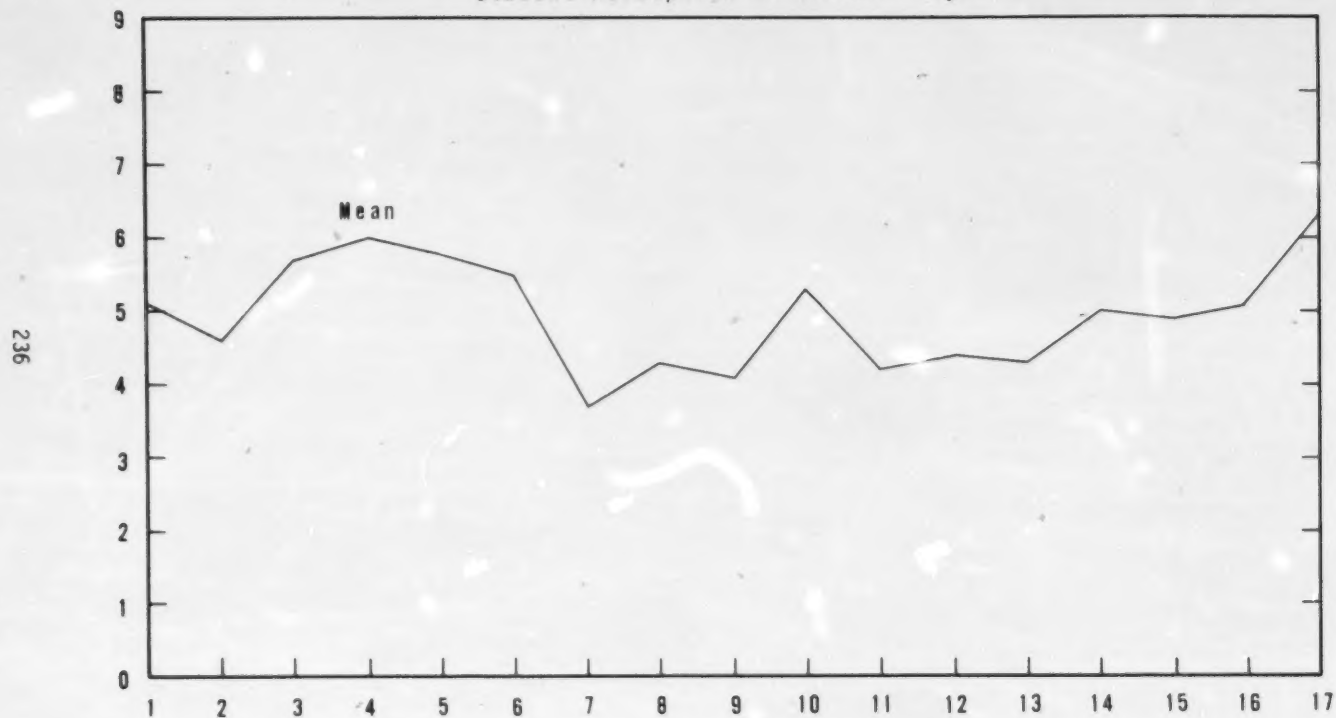


Figure 3
Student Perception of Teacher Style by Classes

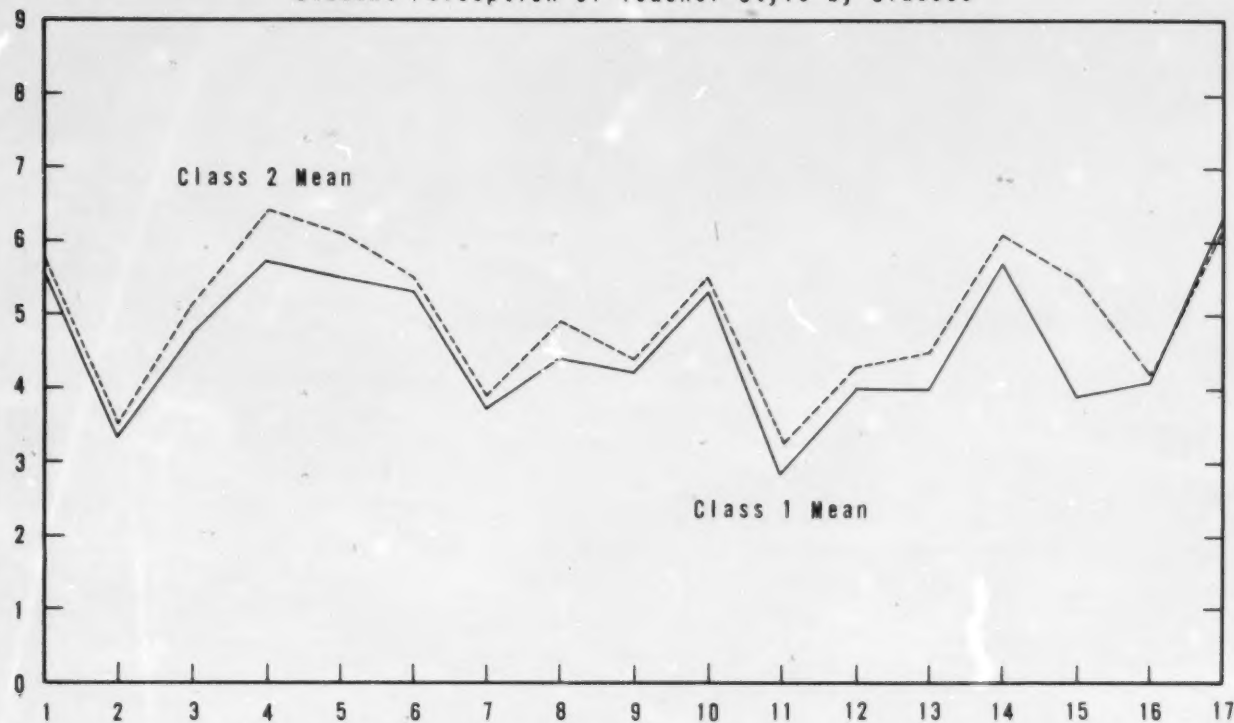


Figure 4

Student Perception of Teacher Style: Teacher Versus Sample of Teachers

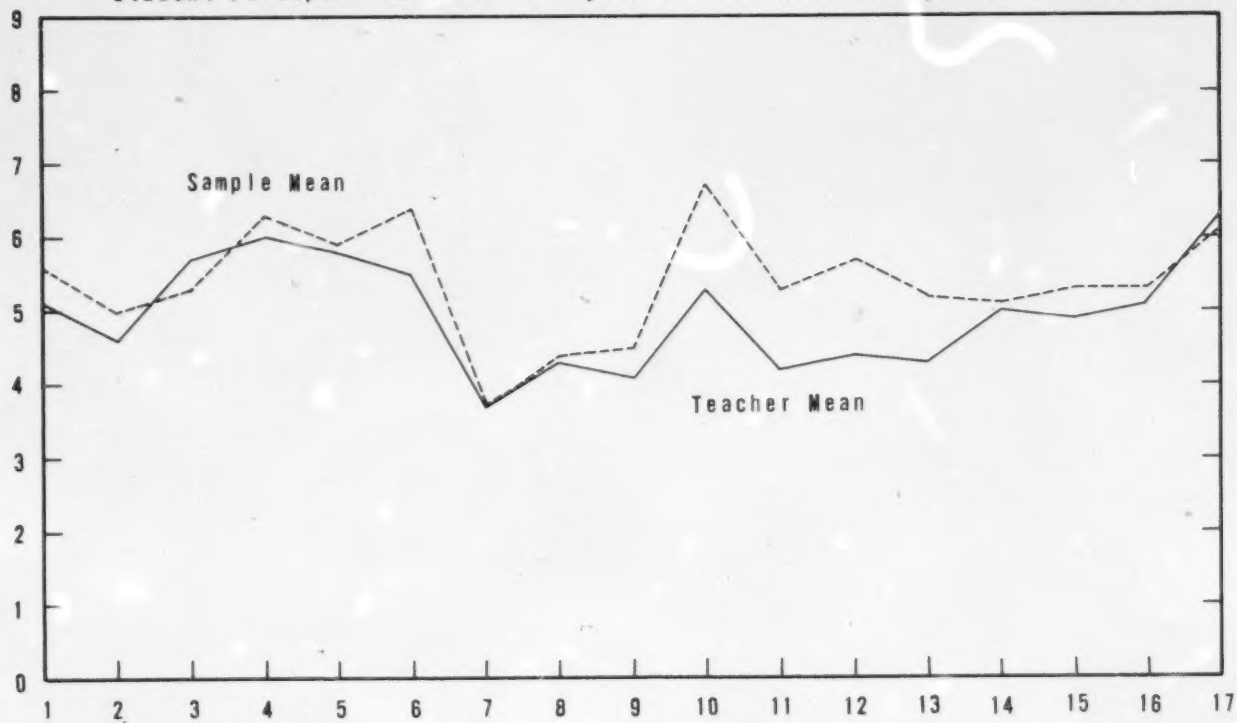
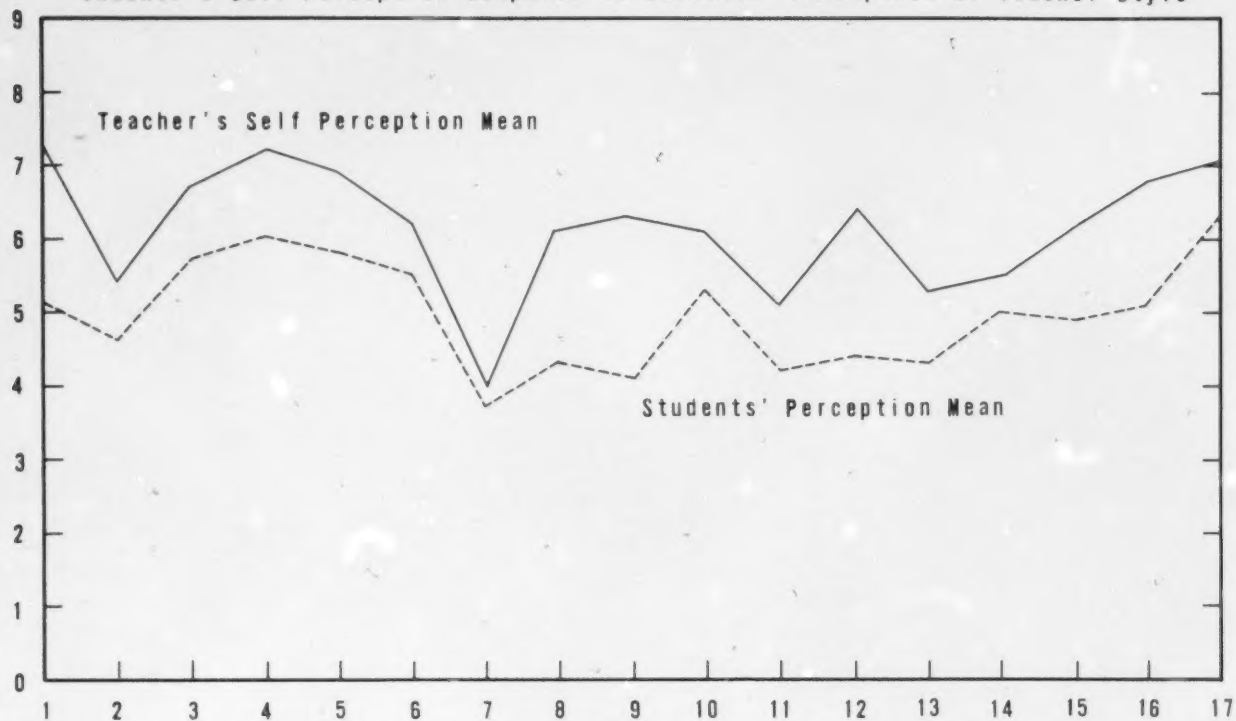


Figure 5
Teacher's Self Perception Compared to Students' Perception of Teacher Style



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- UNESCO. Education on the Move. Paris: UNESCO, 1975.
- UNESCO. Learning to Be. Paris: UNESCO, 1972.

APPENDIX A

Student Perception of Teacher Style SPOTS Questionnaire

1. Your teacher is mainly interested in

1 2 3

How many facts you know

4 5 6

If he gets an idea across to you

7 8 9

Whether you can "think" for
yourself

2. The teacher

1 2 3

Makes you do what he wants you to
most of the time

4 5 6

Makes you do what he wants you to
sometimes

7 8 9

Lets you make your own decisions
most of the time

3. The teacher

1 2 3

Doesn't like to talk about any
subject that isn't part of your
course

4 5 6

Talks about your course subject a lot
but encourages the discussion of
other matters

7 8 9

Likes to talk about different
subjects and is interested in
your personal opinions

4. The students in our class

1 2 3

Only speak when the teacher asks them
a question

4 5 6

Feel free to ask the teacher questions

7 8 9

Feel free to speak up at almost
any time

5. When the teacher or another student says something you don't agree with

1 2 3

You try not to start an argument and feel that it's not your job to tell him he's wrong

4 5 6

You tell why you disagree when the teacher asks you to

7 8 9

You feel free to discuss and argue your point of view whether the teacher asks you or not

6. The teacher

1 2 3

Usually bases his opinions on what the book says or what the principal says

4 5 6

Usually gives you another point of view in addition to what the book says

7 8 9

Tells you that books, teachers, principals and customs are not always right

7. If you were to call your teacher by his first name,

1 2 3

He wouldn't like it and would tell you not to do it

4 5 6

He would tell you that it's alright to call him by his first name outside of school but that he would prefer you to call him by his last name while he is teaching

7 8 9

He wouldn't mind at all

8. The teacher

1 2 3

Never tells jokes while he's teaching and does not like it when the students joke around

4 5 6

Sometimes tells a joke or a humorous story to get a point across

7 8 9

Always tells funny stories and encourages the students to tell about funny things that have happened to them

9. The teacher spends a lot of time

1 _____ 2 _____ 3 _____

Telling you about tests, grades and about how the course is planned

4 _____ 5 _____ 6 _____

Giving you an idea about tests, grades and the course but not too much time giving you the details

7 _____ 8 _____ 9 _____

Asking you to make your own decisions about tests, grades, the course plan or group projects

10. When we are working on a group project or in a committee, the teacher

1 _____ 2 _____ 3 _____

Tells us exactly what to do

4 _____ 5 _____ 6 _____

Suggest ways that the project might be handled

7 _____ 8 _____ 9 _____

Lets the group members decide how the project should be handled

11. The teacher usually

1 _____ 2 _____ 3 _____

Makes all the students do the same thing in class (working, studying)

4 _____ 5 _____ 6 _____

Makes some students work on projects and some students study, depending on how far behind they are

7 _____ 8 _____ 9 _____

Lets the students do what they like as long as they complete the number of projects or chapters assigned by the end of the week

12. When you get angry at the teacher,

1 _____ 2 _____ 3 _____

You usually hold it in because the teacher would punish any show of anger

4 _____ 5 _____ 6 _____

You feel that you can tell the teacher why you're angry

7 _____ 8 _____ 9 _____

You feel that you could show your anger without the teacher becoming angry

13. The teacher

1 _____ 2 _____ 3 _____

Acts like a teacher all of the time

4 _____ 5 _____ 6 _____

Acts like a teacher most of the time but sometimes seems more like a friend

7 _____ 8 _____ 9 _____

Acts like a friend more than he acts like a teacher

14. The first thing the teacher does when he comes into the room

1 _____ 2 _____ 3 _____

Is to tell you to be quiet so that he can take attendance

4 _____ 5 _____ 6 _____

Is to take attendance and ask you why some students are absent (if they are sick, etc.)

7 _____ 8 _____ 9 _____

Is to let you start your projects or studying and then takes attendance while you're working

15. In this class homework

1 _____ 2 _____ 3 _____

Is assigned every day and must be handed in the next day

4 _____ 5 _____ 6 _____

Is divided between work which is due every day and a few long term projects each term

7 _____ 8 _____ 9 _____

Usually consists of long-term projects

16. In our class pupils work together in a group or on a committee

1 _____ 2 _____ 3 _____

Never

4 _____ 5 _____ 6 _____

Sometimes

7 _____ 8 _____ 9 _____

A great deal

17. When there is work which has to be done with another student we are

1 _____ 2 _____ 3 _____

Usually told with whom to work

4 _____ 5 _____ 6 _____

Can sometimes choose our own work partner

7 _____ 8 _____ 9 _____

Can usually decide with whom we want to work

From Tuckman, B. A technique for the assessment of teacher directiveness. The Journal of Educational Research, 1970, 63, 395-400.

Appendice B
SPOTS Questionnaire

- DIRECTIVES: - Répondez sur la feuille de réponses (feuille avec les casiers et chiffres rouges).
- Noircir au crayon à mine (plomb) un seul casier par question.
- Ne pas écrire sur les feuilles du questionnaire et remettre celui-ci après avoir répondu.

Merci.

1. Votre professeur est surtout intéressé...

au nombre de faits que vous connaissez

à vous transmettre ses idées

à savoir si vous pouvez penser par vous-même.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

2. Le professeur...

vous fait faire ce qu'il veut la plupart du temps.

vous fait faire ce qu'il veut quelques fois.

vous laisse prendre vos propres décisions.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

3. Le Professeur...

n'aime pas discuter de sujets hors de la matière du cours

discute beaucoup de la matière du cours mais encourage la discussion dans d'autres matières

aime discuter de sujets divers et s'intéresse à vos opinions personnelles.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

4. Les étudiants dans notre classe...

ne parlent que lorsque le professeur leur pose une question.

se sentent libres de poser des questions au professeur.

se sentent libres de discuter presque en tout temps.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

5. Lorsque le professeur ou un étudiant dit quelque chose et que vous n'êtes pas d'accord...

vous tentez de ne pas engager de discussion et vous jugez que ce n'est pas à vous de dire qu'il est dans l'erreur.

vous dites pourquoi vous êtes en désaccord lorsque le professeur vous le demande.

vous vous sentez libre de discuter et de débattre votre point de vue que le professeur vous le demande ou pas.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

6. Le professeur...

appuie habituellement ses opinions à partir de livres ou de principes.

habituellement vous donne un autre point de vue en plus de celui du livre.

vous dit que livres, professeurs, directeurs et coutumes n'ont pas toujours raison.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

7. Si vous étiez pour nommer votre professeur par son prénom...

il n'aimerait pas cela et vous en aviserait.

il vous dirait qu'il est d'accord pour que vous l'interpelliez par son prénom en dehors de la classe mais pendant qu'il enseigne il préfère que vous l'interpelliez par son nom de famille.

il n'en ferait pas de cas du tout.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

8. Le professeur...

ne fait jamais de farce lorsqu'il enseigne et n'aime pas à ce que les étudiants agissent ainsi.

fait quelquefois une farce ou raconte une histoire humoristique pour imager ce qu'il a à dire.

raconte continuellement des histoires et encourage les étudiants à raconter les événements cocasses qui lui sont arrivés.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

9. Le professeur consacre beaucoup de temps...

à vous parler de tests, de notes et du plan de son cours.

à vous donner une idée des tests, des notes et du cours mais pas trop quant aux détails.

à vous demander de prendre vos propres décisions quant aux tests, aux notes, au plan du cours et aux projets de groupes.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

10. Lorsque vous travaillez dans un projet de groupe, le professeur...

vous dit exactement quoi faire.

propose des façons d'entreprendre le projet.

laisse prendre la décision aux membres du groupe sur la façon d'entreprendre le projet.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

11. Le professeur habituellement...

fait faire le même travail à tous les étudiants en classe (travail, étude).

fait travailler certains étudiants sur des projets tandis que d'autres étudiants en font, selon le rattrapage qu'ils ont à faire.

laisse faire aux étudiants ce qu'ils désirent en autant qu'à la fin de la semaine ils ont complété le nombre de projets ou de chapitres qui leur a été assigné.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

12. Lorsque vous vous fâchez contre le professeur...

vous ne le manifestez pas sans quoi le professeur vous punirait.

vous croyez que vous pouvez dire au professeur pourquoi vous êtes fâché.

vous croyez que vous pourriez manifester votre désaccord sans fâcher le professeur.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

13. Le professeur...

agit comme un professeur en tout temps.agit comme un professeur la plupart du temps mais parfois agit davantage comme un ami.agit plus comme un ami que comme un professeur.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

14. La première chose que le professeur fait lorsqu'il entre dans la classe est de...

vous dire de ne pas parler pour qu'il puisse prendre les présences.prendre les présences et vous demander pourquoi certains étudiants sont absents.vous laisser commencer vos projets ou études et de prendre les presences pendant que vous travaillez.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

15. Dans cette classe les travaux...

sont donnés à chaque jour et doivent être remis le jour suivant.sont partagés en travaux de jour en jour et en quelques travaux de semestre.sont habituellement des travaux de semestre.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)

16. Dans notre classe les étudiants travaillent en groupe...

2. jamais

5. quelquefois

8. beaucoup

17. Lorsqu'un travail doit être fait avec un autre étudiant...

habituellement on nous dit avec qui travailler.quelquefois nous pouvons choisir notre partenaire.nous pouvons habituellement décider avec qui nous voulons travailler.

1. (peu) 2. (moyen) 3. (beaucoup) 4. (peu) 5. (moyen) 6. (beaucoup) 7. (peu) 8. (moyen) 9. (beaucoup)